# Table of Contents

Introduction: 3

1. The Clinical Base Year: the View from 35,000 Feet: 5  
   The 10 Commandments  
   What’s Up with the Core Clinical Competencies  
   Overall Goals and Objectives

2. Clinical Base Year Rotations: 11

3. Medicine – MICU: 12

4. Medicine – Consults: 17

5. Medicine – Cardiac Acute Care Unit: 22

6. Medicine – Nephrology: 27

7. Medicine - Elective: 32

8. Medicine - Wards: 37

9. Medicine - VA: 42

10. Surgery - SICU at VA: 47

11. Surgery - VA: 52

12. Surgery - Winthrop: 57

13. Surgery - General: 62

14. Surgery - Surgical Oncology: 67

15. ER: 72

16. Radiology: 77

17. Anesthesia - Pain: 82

18. Anesthesia – Introduction to the OR: 87
Introduction:
This is a guidebook for anesthesia residents doing their Clinical Base Year.
For each rotation, we will list:

- Education leader.
- Tips.
- Goals and objectives.
- Evaluations.
- Checklists.
- Test.

Details:
- Education leader.
  This is the “go to” person on the service.
  Backup is always Dr Gallagher, the Residency Director.
  His backup is Dr Delemos, the Internship Director

- Tips.
  Former Clinical Base Year residents compiled a “things you need to know on each rotation” tip sheet. Why reinvent the wheel? Why flounder your first few days in a clueless fog? Learn from those “who have already passed this way.”

- Goals and objectives.
  In days of yore, goals and objectives were encyclopedic lists meant to “appease the Residency Review Committee”. They were so long and so detailed that they left reality behind – no one on earth could keep track of all of them, let alone actually DO all the things listed. Furthermore, the lists were not tailored to the anesthesia resident doing the service. That has all changed, the goals and objectives you see here are:
    - short
    - doable
    - modified for anesthesia residents.

- Evaluations.
  The idea on evaluations is this – you shouldn’t just “show up one Monday, get a list of patients to follow, then write orders for 4 weeks on them, then disappear in a cloud of dust at the end of the rotation.” You are here to learn, lest we forget. To make sure that happens, you will have a little “educational arc” for each rotation.

  Check up on you halfway
  Start- evaluate what you know,
  introduce you to what you should learn.
  End –see what you know make sure you learned what you should have
To make sure these three things happen, our evaluations have three parts:

- Mid-point checkup
- Start- Pre-rotation assessment
- End – Post-rotation evaluation

No rocket science here, no educational gobbledygook, no long “never done” evaluations.. Just keeping an eye on you and making sure you are learning.

- Checklists.
  Do these procedures during the rotation. Again, the list is short, is modified to what anesthesia residents should do, so this should be a “living, breathing part of your rotation”.

- Test.
  This test serves two purposes:
  - during the Clinical Base Year, you want to take and pass the USMLE Part 3.
  - eventually you will need to pass your anesthesia boards.
  So, questions have both a USMLE part and an anesthesia part. This test will help prepare you for both. What a deal.
  It’s worth keeping in mind that we have an incentive for USMLE Part 3. If you pass this exam in the first six months of the CBY, we reimburse you 400 dollars. So get that exam out of the way quick! Once that exam is done, you can start concentrating your studies on anesthesia!
1. The Clinical Base Year – the View from 35,000 Feet..

Before we launch into the Clinical Base Year Goals and Objectives, let us first take a look at the 10 Commandments that will guide you in your first year and, truth to tell, all subsequent years:

**The 10 Commandments for Clinical Base Year Residents**

1. Thou shalt care for your patient as that patient needs your help.
2. Thou shalt refrain from saying “I’m going into anesthesia, so I don’t need to…”
3. Thou shalt pitch in with all your energy on every team you are on.
4. Thou shalt consider yourself an ambassador for the anesthesia department always.
5. Thou shalt make different services wish you were going into their specialty instead of anesthesia.
6. Thou shalt prepare for, take, and pass your exams.
7. Thou shalt obey, cherish, and hold inviolate all duty hours.
8. Thou shalt feel free to call your Residency Director whenever a Duty Hour violation looms, or whenever any problem whatsoever comes up.
9. Thou shalt learn the dangers of “Learned Helplessness” and avoid this as “Learned Helplessness” is the path to perdition.
10. Thou shalt foster an atmosphere that getting an anesthesia resident on your team is a great thing.

Let’s turn the stone tablets over and read some of the fine print on these commandments.

1. Thou shalt care for your patient as that patient needs your help.

   It is easy, in the grind that is internship, to bemoan your fate. Keep in mind, that patient in the bed has it much tougher. They’re sick! And however much you may dislike writing orders, or rail at “Oh God, another admission!” remember (cheesy as this sounds), a healthy dollop of kindness and sympathy for that person in the bed, for their family members (who suffer as well), goes a long way. If you yourself have ever been sick, or you’ve been in the hospital when a family member is sick, then you “see things from the patient’s point of view”. And, when you are in that position, what a difference a little niceness makes! So throw off the grumpiness, and be careful with complaining at the nursing desk. People “see” your attitude and “hear your griping”. Hang tight to the Golden Rule in the hospital, and treat that patient the way you’d like to be treated.

2. Thou shalt refrain from saying “I’m going into anesthesia, so I don’t need to…”

   When you are on a “non-anesthesia” rotation, then put your mind fully into that rotation. Everything you learn helps, there’s no such thing as a rotation where “this will never help me in anesthesia, so, to hell with it!” When that patient hits the OR table, we have to know about every single disease, every single drug, every single facet of the patient. So when on a medical service, learn about all the drugs the patient takes, chapter and verse. Learn all the implications of all the diseases on their problem list. When on a surgical service, make note of every facet of the patients’ preop and postop care. In all your histories and physicals, in all your procedures, in all your dealings with patients, family, staff, and colleagues, you are learning material that will eventually be of use in anesthesia, so soak it all up, take it all in.
3. Thou shalt pitch in with all your energy on every team you are on. After your Clinical Base Year, you will dive into the OR, and guess who will be on the other side of the drapes? The very people you were working with just a few months before. Who will you be consulting with and running into on the floors and ICU’s? The very people you were working with a few months before. That’s why you want to pitch in on every team you rotate on; you are building bridges with your future colleagues. You want them to look across the drapes or see you in the ICU and remember “Hey, this is a great doc, he/she took great care of my patients during internship year. He/she never dumped on other people, always pulled a fair share of the work, was diligent and cared for the patients”. Nothing but good comes from that.

4. Thou shalt consider yourself an ambassador for the anesthesia department always.

Everyone knows everyone’s “lineage”. Remember the line from Road Warrior “You can run, but you can’t hide.” So keep that in mind as you are roaming the hallways and clinics of Stony Brook. You are waving the flag of the anesthesia department every single day.

5. Thou shalt make different services wish you were going into their specialty instead of anesthesia.

This is the ultimate compliment you can receive on a service, make that a goal with each rotation. Work every day so that your attending will take you aside at the end of your month and say, “You sure you don’t want to go into (Medicine/Surgery/Radiology/ER)? I’ll be happy to write you a letter.”

6. Thou shalt prepare for, take, and pass your exams.

Get USMLE Part 3 out of the way during your Clinical Base Year.
Get USMLE Part 3 out of the way during your Clinical Base Year.
Get USMLE Part 3 out of the way during your Clinical Base Year.
Get USMLE Part 3 out of the way during your Clinical Base Year.

If you don’t get it out of the way, then, during your Clinical Anesthesia Years, you will be studying USMLE stuff instead of anesthesia. Also, you are required by your contract to get the boards out of the way during your first year with us, so guess what, get it done during your first year.

7. Thou shalt obey, cherish, and hold inviolate all duty hours.

No matter what, do not do a duty hour violation. The next two commandments will harp on this same idea, but it is worth emphasizing. A duty hour violation, however well-intentioned “There was no one else who could cover”, “Too many people were on vacation”, “I had to do it”, is a disaster. Not a little problem. Not a “that’s OK, I understand”.

It is a disaster of the first magnitude. A duty hour violation can result in a 30,000 dollar fine, a citation to the department, a citation to the institution, and a closing of the program.

Read that last part carefully and take it to heart – CLOSING THE PROGRAM. Not only are YOU out of a job, the ENTIRE RESIDENCY is out of a job. Do you want to be responsible for all your fellow residents leaving a defunct program? I didn’t think so. Know those duty hours, stick to them, if you have a duty hour violation, you will be in the Residency Director’s office, looking at an extremely upset and “I don’t care what explanation you give me, you should not have done this” Residency Director.

Better to fire one resident, than lose them all.
No duty hour violations, ever.

8. Thou shalt feel free to call your Residency Director whenever a Duty Hour violation looms, or whenever any problem whatsoever comes up.

Aha, we’re already revisiting the duty hours! (Do you get the idea this is important?)
When you see that a duty hour problem is coming up, call your attending and tell them that you have to get out.
No help from them?
Call the head of the service, the education leader or the Chairman of the Department.
No help?
Call Dr Gallagher, Dr Schabel, Dr Delemos, Dr Glass, Dr Schiavone (head of Graduate Medical Education). KEEP CALLING UNTIL YOU GET HELP. No matter what, we will find a way to get you out.
What if you have another problem (health, family issue, substance abuse, question, concern, harassment, anything)?
Give us a call! We’re here for you. We’re open and available 24 hours a day, 7 days a week, just like 7/11. (Except we don’t serve up Slurpies, Slim Jims, and Lotto tickets.)

9. Thou shalt learn the dangers of “Learned Helplessness” and avoid this as “Learned Helplessness” is the path to perdition.

Here are some examples of “Learned Helplessness” (LH) with the “Cure for Learned Helplessness” provided.

LH: “I had to do the duty hour violation, no one else could cover the floor”.
Cure: See the duty hour problem coming, call for help before the violation occurs. PREVENT the violation and we can help you. COMMIT the violation and come to us afterwards, we can’t do anything for you.

LH: “I didn’t ever do a Swan before, I don’t know what to do.”
Cure: Since you know you’re going to need to do a Swan some day, read about it, look it up, go into a room where they’re doing one and watch, check out the Internet for tutorials. Take it upon yourself to take charge of your education.

LH: “I couldn’t help getting back late and missing work Monday, the flight on Sunday got delayed”.
Cure: Don’t “shave vacations” and come back at the last minute. In this day and age, flights get delayed/weather problems happen all the time. Come back from trips (especially long ones) on Saturday, so if a delay occurs, you can still get back to work on time. Screaming in at 4 AM on Monday morning and staggering into work 2 hours later is unsafe for you and for the patients.

LH: “I didn’t do many lines during my clinical base year, so, well, I’m not that good at them.”
Cure: Of course we want you to do as many lines as possible during your Clinical Base Year. We do lines all the time in anesthesia, so be aggressive and do as many as possible (peripheral, central, arterial) during your internship year.

LH: “I didn’t know a duty hour violation was a big thing.”
Cure: Need I repeat myself?

LH: “I didn’t know we needed to pass USMLE Part 3.”
LH: “I didn’t know…”/”No one ever told me…”
Cure: At risk of sounding preachy, let’s just lay this out for you crystal clear. You are adult learners now. No one is going to spoon feed you or make sure that you are doing everything you’re supposed to be doing. YOU are supposed to take care of yourself. Go to your resources and ask (Residency Director – Dr Gallagher, Residency Coordinator – Joan Claeson, Assistant Residency Coordinator and New Innovations Guru – Olja Meyer). Go to our website and look up, go the ABA website and look up. You will need to take it upon yourself to make sure you are crossing all the t’s and dotting all the i’s in the administrative realm. Here’s a few concrete examples (with some repeats to emphasize the point) of Learned Helplessness:

-“I didn’t know that not having 10 hours off between shifts was a duty hour violation.”
-“I didn’t know that going over 80 hours a week was a duty hour violation.”
-“I didn’t know that not having 1 day off in 7 was a duty hour violation.”
-“No one ever told me that (fill in the blank) was a duty hour violation.”
-“No one ever told me to check my e-mail” (This is a personal favorite.)
-“No one told me that I had to check the schedule.”
-“I didn’t know we had to register for that exam.”
-“I didn’t know there was a deadline.”
-“No one told me I had to get my yearly physical.”

Each of these, and hundreds more, are all examples of “Learned Helplessness”. Avoid LH like the plague that it is!

10. Thou shalt foster an atmosphere that getting an anesthesia resident on your team is a great thing.

We leave footsteps. Make sure that the footsteps you leave are good ones for the next CBY resident. When a Stony Brook CBY anesthesia resident shows up on a service, we want to hear “Oh be joyful, for unto us is given a resident most welcome, for we love and cherish all who come from anesthesia land!”

**What is Up with the Six Core Clinical Competencies?**

You just finished medical school, where you studied 10 competencies. Well, guess what, you’ve now graduated to residency and you will be studying 6 competencies (which are just a rephrasing and reshuffling of the ones you used in medical school). They come across as “education-speak”, but if we link them to something “real” (like an actual case), you can see how they work.

Let’s get “real”, then, skip the jargon, and show how it works.

You admit a patient with a myocardial infarction. How do you “wrap the six core clinical competencies” around his care?

**Medical Knowledge** – Know that coronary thrombosis causes myocardial cell death
**Patient Care** – Place the IV, get the EKG, put nasal cannula on.

**Practice-based Learning and Improvement** – Know the literature that says how best to manage MI.

**Systems-based Practice** – Work with cardiology to get the right intervention.

**Professionalism** – Be on time, be ready, act in timely and polite way.

**Interpersonal and Communication Skills** – Clearly explain to patient and family what is happening.

Of course it’s much more complicated than this and you could go on and on about all the many facets of each of the competencies, but that’s the gist of it. Better to know the gist of these and apply them than try to memorize page after page of Competency-ness and forget it all.

Throughout the CBY-1 year and into the CA years, we will be phrasing our teaching and our evaluating in “Competency-based” speech, so might as well get used to it early on. Once you see how it works it’s not so bad.

---

**Goals and Objectives for the CBY-1 Year**

During your clinical base year, you’ll learn how to take care of patients. You’ll be a “generalist” for a year, so you can concentrate on being a “specialist” over the subsequent 3 years.

Steep yourself in each rotation and learn as much as you can. Everything you learn will be of help, including “getting along with everybody” and “learning to steer your way through the system”. During your medicine, surgery, emergency room, and radiology rotations, you will take care of “everybody with everything”, good preparation for anesthesia, where you will anesthetize “everybody with everything.”

**Patient Care (PC)**
1. Do an H and P.
2. Recognize a patient in trouble.
3. Get the right labs.
4. Come up with a good plan.
5. Call for help. Get the right consultant.
6. Do IV’s, art lines, and try to get some central lines.
7. Get a surgical patient ready for the OR.

**Medical Knowledge (MK)**
1. Understand:
   - diabetes
   - obesity
   - hypertension
   - chest pain, MI, CHF
   - stroke
   - pneumonia
   - acute abdomen.
2. Know the meds used on their patients, especially
   - Plavix, Coumadin and heparin
-anti-hypertensives
-narcotics
-oxygen
3. Treat pain, acute and chronic.
4. Know which labs to get and how to get them out of the hospital system.
5. Order and give blood.

**Interpersonal and Communication Skills (ICS)**
1. Do an H and P politely.
2. Explain the plan politely.
3. Handle questions from family.
4. Hand off patients safely.
5. Get along with hospital staff.
6. Handle problems efficiently.
7. Present to attending.
8. Get the right consults

**Professionalism (P)**
1. Arrive on time, rested, and neat.
2. Don’t dump on your fellow interns.
3. Admit it if you make a mistake.
4. Follow HIPAA rules on patient privacy.
5. Follow the Golden Rule with everybody.
6. Get dictations/your own physical/all paperwork done – don’t be an administrative pain.

**Systems-Based Practice (SBP)**
1. Know what stuff costs.
2. Know who does what in the hospital.
3. Know how to get labs and X-rays.
4. Teach medical students.

**Practice-Based Learning and Improvement (PBL)**
1. Read the latest on your patient.
2. Keep studying – things change.
3. Don’t get ticked when critiqued, that’s how you learn.
4. Teach medical students
2. Clinical Base Year Rotations.

Medicine – Medical Intensive Care Unit
Medicine – Consults
Medicine – Cardiac Acute Care Unit
Medicine – Nephrology
Medicine – Elective
Medicine – Wards
Medicine – VA
Surgery – VA ICU
Surgery – VA
Surgery – Winthrop
Surgery – General Surgery
Surgery – Surgical Oncology
Emergency Room
Radiology
Anesthesia – Pain
Anesthesia

Now let’s insert the components into the rotations.
3. Medicine – Medical Intensive Care Unit.

- Education leader.
  - Dr Paul Richman
  - Dr Gallagher
  - Dr Delemos

- Tips in general for all your rotations:
  - Pre-write progress notes the night before whenever you can.
  - Make a favorite folder in powerchart with most common orders that you use, it will save you a lot of time.
  - In SB, call 47788 instead of 46000 or 0 for the operator.
  - Be friendly to supporting staff, they will help you out down the road.
  - In SB, discharging a patient consist of medication reconciliation, filling out discharge paperwork, and entering discharge patient order in the computer.
  - Medicine rotations are more comfortable allowing you more decision-making than surgery rotations.
  - VA rotations, some antibiotic orders require requisition form to be filled out, blood cultures have to be done by the resident, get VA credentials prior to VA rotations.

- Tips specific to MICU
  - Pre-write progress notes to save time in AM
  - Help co-interns get work done while they are presenting during rounds
  - Call consults EARLY
  - Photocopy notes if attending requires detailed presentation of patient data
  - Learn the different types of vent settings.
  - Help fellow interns put in orders, pull up studies, or scour charts when they’re presenting.

- Competency-Based Goals and Objectives.

  **Goals**
  - To know when to admit a patient to the ICU. (PC, MK, SBP, P, ICS)
  - To know basics of ventilator and hemodynamic management. (PC, MK)

  **Objectives**
  - To recognize physiologic instability (PC, MK, PBL)
  - To order appropriate lab and imaging studies (PC, MK, ICS, PBL, SBP)
  - To learn about principles of airway management including risks of sedation. (MK)
  - To prevent and treat infections. (PC, MK, SBP)
  - To run resuscitative infusions. (PC, MK)
  - To interact with families (ICS, P)

- Evaluations.
  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
  The education leader is responsible for making sure all three are completed.
If they are not completed, then Dr Gallagher will do them. The evaluations have to be done by:
-Pre-rotation – End of 1st week
-Mid-rotation – End of 2nd week
-End-rotation – End of 4th week

- Checklists.
  Present new admissions
  Write orders
  Obtain consults
  Interpret physical exam and lab data

- Test.

1. A 67 year old male patient suffers a cardiac arrest on the floor and resuscitation proves long and
difficult. The patient is transferred to your MICU. The patient fails to awaken afterwards and a CT is
ordered. You suspect to find results consistent with ischemic injury secondary to hypertension.
Where will the CT scan lesions appear?
   a. Cerebellum
   b. Thalamus
   c. Bilateral cortex
   d. Brainstem
   e. Medulla oblongata

Answer: (C) Bilateral cortex.
When a hypotensive injury strikes the brain, the areas affected are the watershed areas of the cerebral
cortex where the anterior and middle cerebral arteries overlap and where the middle cerebral and posterior
cerebral arteries overlap. Hence, the answer is “bilateral cortex”.

Link to anesthesia: When a patient fails to awaken from anesthesia, we look in three areas for the likely
causes:
   -pharmacological (our anesthetic drugs, sedatives, and relaxants)
   -physiologic (low sodium, low glucose, acidosis)
   -neurologic (that’s where we go to imaging studies to see if intracranial injury occurred)

2. This patient progressively worsens and the diagnosis of brain death is raised on rounds. All of the
following are characteristics of brain death with the exception of:
   a. Unresponsiveness to sensory input
   b. Preservation of brainstem reflexes
   c. Absent respiratory response with a PCO2 of 60 mm Hg
   d. No sedative drugs can be on board during assessment
   e. Criteria must persist for more than 6 hours together with a flat EEG.

Answer (B) Preservation of brainstem reflexes
Irreversible cessation of all brain function (including brainstem reflexes) is consistent with brain death.
The patient must be unresponsive to sensory input, including pain. No breathing with elevated carbon
dioxide, no sedative agents (that would obviously interfere with a complete evaluation). And this must persist, along with a flat EEG.

Link to anesthesia: We are called on to do organ harvesting for transplant on patients who have suffered brain death. We need to know that the patient fit the criteria for brain death. Anesthetic management for these patients is complicated by fluctuating blood pressures (their higher centers for “fine tuning” hemodynamic responses are damaged) and, often, severe hypovolemia (in an attempt to lower intracranial pressure, these patients are often diuresed aggressively).

3. A 30 year old active tennis player notices she “can’t get to the ball” like she used to and is even having trouble getting up the few stairs to the tennis court. You see on exam that she has decreased lower extremity strength as well as reflexes. She had a recent cold but thought nothing of it. Her weakness progresses so rapidly after a few days in the hospital that she is admitted to the MICU with concern of imminent respiratory failure. This is consistent with:
   a. Cardiomyopathy
   b. Multiple sclerosis
   c. Meningitis
   d. Guillan-Barre syndrome
   e. Depression

Answer (D) Guillan-Barre syndrome.
The physical findings of this syndrome are usually weakness (usually symmetric) of the lower extremities associated with loss of deep tendon reflexes. This usually starts in the lower extremities and ascends. CSF shows increased protein without pleocytosis. (Contrast with meningitis, where you will see cells and a low glucose).

Link to anesthesia: If called to intubate this patient, we would avoid succinylcholine for fear of causing hyperkalemia. Autonomic nervous system dysfunction accompanies the somatic nervous system problems, resulting in hemodynamic swings (exaggerated drop in blood pressure with postural changes; exaggerated increases in heart rate and blood pressure with laryngoscopy)

4. A 30 year old convenience store clerk is being progressively inconvenienced by development of worsening headaches. She can hardly work anymore and is worried. Physical exam is remarkable for obesity and papilledema. What is the best next study?
   a. CT of the brain with and without contrast
   b. Thyroid function tests
   c. Chest X-ray, lateral and AP
   d. Examination of sweat for increased sodium.
   e. Beta HCG

Answer (A) CT
Headache and papilledema point to increased intracranial pressure, so you need to first rule out a mass lesion by a CT (you could also do an MRI), since this may uncover a surgical cause for these symptoms. The other exams may uncover something, but not relevant to this case.

Link to anesthesia: We are sometimes asked to sedate people in either the CT or the MRI scanner in order to obtain a good study. Sedating a person with increased intracranial pressure is an extremely delicate subject, since you can sedate them, they increase their CO2, worsen the ICP, and you’re off to the races. Plus, if you oversedate them (easy to do since increased ICP itself can lead to obtundation) they can develop apnea or can vomit and aspirate.
5. This patient is worked up and found to have pseudotumor cerebri. What is the first line treatment for this condition?
   a. Craniotomy
   b. Placement of a bolt to monitor ICP
   c. STAT placement of a ventriculo-peritoneal shunt.
   d. Acetazolamide
   e. IV administration of mannitol.

Answer (D) Acetazolamide
Surgical treatment, including a VP shunt, is one option in treating this condition, but first you can go with the much less invasive option of acetazolamide therapy. This causes a decrease in CSF production and can bring this condition under control.

Link to anesthesia: In the OR, we are often asked to do measures to decrease the intracranial pressure. Mannitol, furosemide, head-up position are all used. In emergencies, we can employ hyperventilation, but this has its own set of limitation and drawbacks. Various anesthetic meds impact ICP is well, but let’s not get ahead of ourselves.

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. A 59 year old man with a 30+ year history of tobacco use presents with progressive weakness and “feeling rundown”. He’s noted that he gets up 3 times a night to urinate now and his wife notes he’s drinking a lot of water and orange juice lately. On exam, he has dullness to percussion and decreased breath sounds half way up on the right chest. Initial workup should include?
   a. CXR
   b. Pleural tap
   c. Spiral CT to look for PE
   d. Serum electrophoresis
   e. Chem 7.

Answer (A): CXR
When designing a workup, you always want to go with the most “bang for your healthcare buck” and that means go for the highest yield study with the lowest morbidity. His history and physical exam scream “lung malignancy”, so go first with a CXR.

7. On examination of his labs, he is found to have an elevated calcium. The best treatment for this initially involves?
   a. Furosemide
   b. Hydrochlorothiazide
   c. Steroids
   d. Dialysis
   e. Hydration.

Answer (E): Hydration
Hydration with normal saline is the best initial treatment for hypercalcemia. The polyuria created by the high calcium level has likely left this person volume depleted, so you need to replace the volume. By expanding volume, you dilute the calcium and favor calcium loss in the urine.
8. A patient is going trekking in Nepal but is concerned that he may get “Mt Everest’s Revenge” and develop diarrhea. He asks for a plan to deal with traveler’s diarrhea. Your recommendation?
   a. Drinking bottled water should prevent this.
   b. Take Pepto-Bismol 4 x/day, every day.
   c. Cancel the trip
   d. Ciprofloxacin for 5 days at the first sign of diarrhea.
   e. Eat native yogurt every day to keep the bowel flora healthy.

Answer (D): Cipro at the first sign of diarrhea.
Most traveler’s diarrhea is E. coli, and Cipro is a good treatment for that. Sticking with bottled water, though a good idea, doesn’t prevent the contamination of food by dirty water. Native yogurt? Might well be contaminated too. Non-stop Pepto Bismol has its own problems. Cancel the trip? What, are you nuts? The world ends in 2012, we have to have fun while we can!

9. The man drains a bottle of two per day of Pepto-Bismol while in Nepal. He notices that he bleeds when he flosses, and even minor scratches “bleed all day”. Why is this occurring?
   a. Liver failure from the Pepto-Bismol.
   b. Prolongation of PT by direct thrombin inhibition.
   c. Pepto-Bismol’s effect on platelets
   d. Renal failure from the nasty pink stuff.
   e. Effect of high altitude on his platelets.

Answer (C): Platelet effect.
Read the label! Pepto Bismol has salicylate in it, and the last time I looked, that’s aspirin. So taking all this Pepto-Bismol is like taking a ton of aspirin, with its attendant inhibition of platelet function. PB doesn’t cause liver or renal failure.

10. A 60 year old woman suffers from severe depression, and this has now developed psychotic features (she speaks to Josephine, Napoleon’s mistress, about the stock market). She is refusing all medications at this point. The next best treatment for her should be?
    a. Place a feeding tube and give anti-psychotic meds in a slurry.
    b. IV haldol
    c. Observation in restraints
    d. Electroconvulsiver therapy.
    e. Lobotomy.

Answer (D): ECT
For severe depression with psychotic features, ECT is more effective than anti-depressants alone. Things have come a long way since “One Flew Over the Cuckoo’s Nest”, and under anesthesia (yeah!) the procedure is comfortable, well-tolerated, low on adverse effects, and effective.
4. Medicine – Consults

- Education leader.
  - Dr Susan Lane (she is the Residency Director for Internal Medicine. You do 5 months of Internal Medicine all told, and she’s the “Go To” person in that department.
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - This tends to be an easy rotation.
  - Good rotation to do your USMLE Part 3.
  - They often “cannibalize” this rotation, pulling you to another rotation where bodies are needed.

- Competency-Based Goals and Objectives.

GOALS
- To consult services outside Internal Medicine (ICS, SBP, MK)
- To work with other services. (ICS, P, SBP)

OBJECTIVES
- To make sure a surgical patient is optimized prior to their operation. (MK, PC, PBL)
- To manage patients on psychiatry, surgery and orthopedics. (ICS, MK, PC, SBP, PBL)
- To transfer patients to Internal Medicine (PC, ICS, SBP, PBL, P)
- To review appropriate literature. (PBL, MK, P)

- Evaluations.
  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.
  The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week

- Checklists.
  Write daily progress notes.
  Communicate with the primary team

- Test.
1. You are on the GI consult service and asked to see a 59 year old man with a long history of alcohol abuse who presents with severe abdominal pain, nausea, and vomiting. The pain radiates through his back “like a drill going through me”. The most likely diagnosis is:
   a. Pancreatitis
   b. Ascending cholangitis
   c. Pneumonia
   d. Reflux
   e. Herniated disc

Answer (A) Pancreatitis
The classic presentation of pancreatitis is boring pain through the abdomen through to the back, and the classic patient suffers from alcohol abuse. Pain is often worse in the supine position. No surprise, disease in the pancreatic area can often involve the nearby biliary tree.

Link to anesthesia: Pancreatitis is most often treated medically, but when this progresses to necrosis and requires an operation, we get called in. These can be difficult cases, requiring multiple trips back to the OR. Third spacing can be extensive in the retroperitoneal space, thus, you have to be ready for large volume delivery.

2. A CXR is performed on this patient and a pleural effusion is noted. Which side is the effusion likely to be on, and what findings would a thoracentesis show?
   a. Right, exudate
   b. Right, transudate
   c. Either are equally likely, exudates
   d. Left, transudate
   e. Left, exudate

Answer (E) Left, exudate
Complications of acute pancreatitis are many, ranging all the way up to ARDS, DIC, and Budd-Chiari syndrome (thrombosis of the hepatic vein). When a pleural effusion appears, they are most often on the left and exudative.

Link to anesthesia: A common question when a patient comes to the OR with an effusion is “Should we drain the effusion first?” In general, you don’t want to do this, since the effusion will reaccumulate and you’ll “lose a lot of fluid into the chest” as this fluid is drawn off from the intravascular space. Only if the patient is in imminent respiratory failure would you argue for draining the effusion off.

3. You are on General Medicine consult and see a 29 year old woman in the clinic. Her friend brought her in because she “just can’t seem to do thing for herself anymore”. This woman was a researcher at Brookhaven with several landmark papers under her belt, but in the last year, she is not producing any research, doesn’t attend conferences, and often just doesn’t show up to the lab. You are surprised to see how sloppily she is dressed, and her hair is greasy and matted. This is consistent with:
   a. Alcoholism
   b. Acute cocaine intoxication
   c. Adjustment disorder
   d. Schizophrenia
   e. Bipolar disease
Answer (D) Schizophrenia
This woman fits the pattern of onset in the 25 – 35 year old range, previous high level of function, abrupt and progressive decrease in social function, and social withdrawal. Appearance also is consistent with schizophrenia.

Link to anesthesia: Treatment for schizophrenia can have a detrimental affect on an anesthetic, as high doses of antipsychotics can cause alpha blockade, resulting in hypotension. A rare complication of antipsychotic drugs is neurolept malignant syndrome, which shares some features with malignant hyperthermia, a drug all anesthesiologists know about, and hope they never see!

4. A 50 year old man was found at blood donation (he’s a saint!) to have a first time elevated blood pressure reading of 162/90. Your initial evaluation should include?
   a. Stress echo
   b. CT to look for intracranial pathology
   c. Screen for diabetes and other cardiovascular risk factors (cholesterol, eg)
   d. 24 hr creatinine
   e. Holter monitor to look for dysrhythmias

Answer (C): Screen for DM and CV risks.
In the initial evaluation of a “virgin hypertensive”, you should screen for other factors often associated with this condition – diabetes and hypercholesterolemia. No need to dig so deep or so expensively as all the other suggestions are just not needed initially.

Link to anesthesia: A major problem we face all the time is “when is the blood pressure too high to proceed with an elective operation?” This is an extremely tough question with precious little “science” behind the recommendations. Our current best guess is – if the diastolic is greater than 110, better to have the patient postponed and optimized. This is a battle you will fight your entire career.

5. Initial medical treatment for this condition (after recommending weight loss, exercise, and diet modifications), should be?
   a. Single dose therapy with furosemide
   b. Single dose therapy with beta-blocker
   c. Two-drug therapy.
   d. Single dose anti-hypertensive plus digitalis.
   e. One time phlebotomy to a hematocrit in the 20’s.

Answer (C): Two-drug therapy.
This patient has stage 2 hypertension (SBP 160) so should be treated with an ACE inhibitor plus one more drug (beta-blocker or thiazide or calcium-channel blocker).

Link to anesthesia: ACE inhibitors are controversial, because some would say they should be stopped the day of surgery (they are associated with refractory hypotension post induction) while others would say we should continue them the day of surgery (to avoid rebound hypertension). Few places have tumbled to the “NO to ACE inhibitors” but the debate goes on. Suffice it to say, we need to be aware of what meds the patient is on and how it will affect (or screw up!) our anesthetic.

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.
6. A high school cheerleader, distraught over being kicked off the team, takes an entire bottle of Drano. On arrival to the ER, her airway is OK and she is exchanging air, but burns are evident over her mouth area. Initial evaluation should include?
   a. Intubation immediately.
   b. Placement of an NG tube on low intermittent suction.
   c. Upper endoscopy
   d. Gastrostomy tube placement.
   e. Soft diet

Answer (C): Upper endoscopy.
Since she is exchanging well, you don’t need to intubate her (though that, obviously, can change if her condition changes). Upper endoscopy helps determine the degree of damage. Don’t place an NG as this could perforate the esophagus, and she should get parenteral nutrition until her esophagus heals.

7. The most likely long term complication associated with this caustic ingestion is:
   a. Cirrhosis
   b. Renal insufficiency
   c. Renal tubular acidosis
   d. Esophageal strictures.
   e. Esophageal diverticulum

Answer (D): Strictures
As the esophagus heals and scars down from the severe burn, strictures can develop. Perforation, carcinoma, and aortoesophageal fistula (usually fatal) can also occur.

8. A 22 year old medical student comes to student health with complaints of anxiety, nervousness, insomnia, and constantly fighting with her room mate. She’s lost 15 pounds without dieting and feels her heart racing. Her heart rate is 135. On exam, her eyes are protuberant. A likely diagnosis is?
   a. Pheochromocytoma
   b. Manic state
   c. PMS
   d. Hypopituitarism
   e. Hyperthyroidism

Answer (E): Hyperthyroid
The history, physical, and setting (young woman) all make a good argument for hyperthyroidism. Excess thyroid hormone is being produced, causing a “metabolic supernova” with her cardiac, metabolic, and nervous systems all in overdrive.

9. The best initial treatment for this patient, prior to getting confirming blood studies, is?
   a. Propranolol
   b. Iodine
   c. Methimazole
   d. PTU
   e. Insulin

Answer (A): Propranolol
Beta blockers help treat the symptoms (tachycardia) as well as reducing release of the thyroid hormone. Methimazole and PTU result in reducing the organification of iodine into thyroid hormone, but days may
pass before any effect is seen. Iodine helps as well, but should only be given after the thyroid tests are back.

10. A 70 year old man with a history of diverticulitis presents with intense abdominal pain and fever. He has severe CAD and has had several stents placed. A ruptured diverticulum is suspected. Which test would confirm this and place this patient on the fast track to the OR?
   a. CXR showing pleural effusion.
   b. Pyelogram showing stone.
   c. CXR showing free air under the diaphragm
   d. ERCP showing a gall stone
   e. Ultrasound showing thickened ileocecal valve

Answer (C): Free air.
The classic sign of a perforated viscus is free air under the diaphragm. This patient has a history placing him at risk for a perforation (diverticulitis) and physical findings consistent with that. The basic measure of a CXR showing free air confirms the diagnosis.
5. Medicine – Cardiac Acute Care Unit

- Education leader.
  o Dr Luis Gruberg
  o Dr Gallagher
  o Dr Delemos

- Tips.
  - For all new patients, you must obtain past cath reports, stress tests, echos, and EKGs
  - Past catheterization reports can only be obtained from the office across from scrub machines
  - Expect 1-3 new patients daily, on average
  - Prepare to discharge 1-3 patients daily, on average
  - Load up on prescription pads

- Competency-Based Goals and Objectives.

GOALS

- To evaluate and manage acute heart disease ( MK, PC, PBL, ICS )
- To triage ( MK, PC, PBL, ICS, SBP, P )
- To interpret non-invasive and invasive heart studies. ( PC, MK )

OBJECTIVES

- To interpret EKG’s, caths and echoes. ( MK, PC, PBL, ICS )
- To manage unstable coronary artery disease ( MK, PC, PBL )
- To manage heart failure. ( MK, PC, PBL, ICS )
- To manage dysrhythmias. ( MK, PC, PBL, ICS )
- To reduce secondary risk ( MK, PL, PBL, SBP )
- To learn about the management of valvular heart disease ( MK, PC, PBL )
- To recognize dangerous lab or physical findings. ( MK, PC, PBL )
- To learn psychological and social issues in patients and families ( P, SBP, ICS, PC )

- Evaluations.

  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.
  The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week
23

Checklists.
Write admission orders
Write discharge orders
Intervene if patients decompensate
Update the team on patients’ status

Test.

1. A 63 year old man was celebrating his honeymoon with his brand new 22 year old bride. He took Viagra and, well, midway through…um…things…he developed crushing chest pain radiating down his left arm and into his jaw. EKG shows signs consistent with an anterior MI. In your acute care unit, medications should include all of the following except:
   a. Morphine
   b. Aspirin
   c. Nitrates
   d. Oxygen
   e. Anti-anxiety medications for his screaming, ex-wife who heard the news and is terrorizing your staff.

Answer (C) Nitrates
Nitrates combined with the active ingredient in Viagra will result in an exaggerated drop in blood pressure. This drop in pressure may result in cerebral or myocardial ischemia. The other meds are standard of care for taking care of a person with a fresh MI, and E is common sense, who are we kidding.

Link to anesthesia: A person with a fresh MI coming to the OR is a pretty scary specter, since the risk for worsening ischemia is so high. But at times our hand is forced (emergent cardiac surgery cannot wait, for example, or a patient may have such severe pain from an acute abdomen that they develop ischemia). In these demanding cases, you focus on doing everything you can to improve the myocardial oxygen supply/demand situation. Increase oxygen supply (100% oxygen, transfuse a low hematocrit) and decrease oxygen demand (drop the heart rate with narcotics, anesthetics, or beta blockers).

2. A 48 year old man with long standing cocaine use is admitted to your acute coronary care unit for rule out MI. His blood pressure is 220/110, HR is 95, and he is complaining of a tearing sensation that goes through to his back. His chest X-ray shows mediastinal widening and his EKG shows LVH. Treatment at this point should be:
   a. Heparin
   b. Rheopro
   c. Aspirin
   d. Nitroglycerine
   e. Labetalol

Answer (E) Labetalol
This presentation is more consistent with an aortic dissection than a myocardial infarction. Treatment needs to both drop the blood pressure but also decrease the shear pressure across the weakened and threatened aorta. Labetalol, with its combination of alpha and beta blockade, is a good choice.

Link to anesthesia: If this is a Type A dissection, then this patient will be coming right over to the OR, since, untreated, this has a high mortality (1% per hour!) If this dissection is below the ligamentum flavum (that is, below the left subclavian) then it is most often treated medically.
3. You are recovering a patient in your care unit after an uneventful heart cath. Turns out the coronaries were clean. Over time, the nurse in the unit notes that the patient’s heart rate continues to climb, the blood pressure is trending down, and the patient is looking more pale and short of breath. A likely cause of this is:
   a. Prinzmetal angina
   b. Necrotizing colitis from the catheterization
   c. Bleeding
   d. Congestive heart failure
   e. Allergic reaction to contrast.

Answer (C) Bleeding
Rising heart rate, dropping blood pressure, shortness of breath, and becoming pale after a major vascular procedure should always raise a suspicion of bleeding. The bleeding may be obvious (large hematoma right over the femoral artery entry site) or more sinister (retroperitoneal, impossible to see on routine exam).

Link to anesthesia: We look for the same signs of bleeding under anesthesia – dropping pressure, rising heart rate, suspicion (any procedure where blood loss can occur), and becoming pale. Retroperitoneal bleeds are notoriously hard to pick up, and the surgeon’s options are limited in the retroperitoneum – the more they dissect, the more trouble they can stir up!

4. You are writing the discharge orders for your patient. You see that the patient has a blood pressure of 148/91. According to the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of High Blood Pressure, this level of hypertension is?
   a. Not hypertension.
   b. Malignant hypertension.
   c. Pre-hypertension
   d. Stage 1 hypertension
   e. Stage 2 hypertension

Answer (D): Stage 1
According to the JNC, pre-hypertension is 120-139/80-89, Stage 1 is 140-159/90-99, Stage 2 is 160-180/100 – 110, and Stage 3 is higher still (yipes!).

Link to anesthesia: An important point for us to consider is the autoregulation curve for cerebral blood flow. The hypertensive patient “shifts the curve to the right” so that they “need” a higher pressure to maintain adequate blood flow to the brain. If, in the course of our anesthetic, we drop the blood pressure to “normal”, that will be “too low”.

5. A 28 year old patient is admitted to the CACU with shortness of breath. You get an extremely detailed report of an illness he had at age 7. At that age, he developed painful knee and elbow joints and had erythematous macules on his trunk and extremities. The family refused medical care for religious reasons. What is the most likely cause of the patient’s current shortness of breath?
   a. Myocardial infarction
   b. Cardiomyopathy
   c. Endocarditis
   d. Mitral stenosis from rheumatic heart disease
   e. Pulmonic insufficiency

Answer (D): Mitral stenosis.
This young man’s story is consistent with rheumatic fever at a young age (joint involvement plus the rash point to a strep infection). Since this was left untreated, he likely developed rheumatic heart disease. It takes roughly 20 years for symptoms of mitral stenosis to develop after a bout of rheumatic fever.

Link to anesthesia: We see mitral stenosis from rheumatic heart disease most often in the immigrant population, as they may have had untreated rheumatic disease as children. When this situation arises in obstetrics, this causes a serious problem, as mitral stenosis plus the fluid challenges of pregnancy often put these patients into volume overload, which their stenotic mitral valve cannot handle.

**SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.**

6. A colleague in the OR converts his TB skin test after exposure to an infected patient. Your colleague drinks a pretty respectable 2 six-packs per day of Molson Light. He is otherwise OK, is HIV -, and has a normal CXR. Best treatment option for this recent conversion of a TB skin test is?
   a. Since he is not symptomatic, no treatment now.
   b. Repeat the skin test in 6 months to see if it goes back to normal
   c. Isoniazid daily for 6 months
   d. Rifampin plus pyrazinamide for 2 months.
   e. BCG vaccination.

Answer (C): Isoniazid for 6 months.
You have to treat this skin conversion, since this indicates TB infection, regardless of lack of symptoms. The heavy alcohol use makes rifampin plus pyrazinamide a bad choice because of the high likelihood of hepatotoxicity. BCG vaccination is not effective. So treat with isoniazid, being careful to monitor for liver toxicity.

7. A 19 year old college student reports to the student health clinic with complaints of a 1 month history of a white, creamy vaginal discharge associated with a foul odor and pruritus. She has tried different remedies from the drugstore but to no avail. What diagnostic studies can help determine the cause of this discharge?
   a. Vaginal pH and noting the odor when KOH is applied to a slide of the discharge.
   b. Cervical biopsy.
   c. VDRL
   d. Blood culture
   e. HIV testing

Answer (A): pH and KOH study.
Vaginal pH will help because Candida vaginitis has a pH < 4.5 and bacterial is >4.5. A foul odor when KOH is placed on a wet mount of the discharge indicates bacterial vaginosis, the most common cause of vaginitis. A wet mount would also show clue cells, which are epithelial cells studded with bacteria.

8. Bacterial vaginitis is diagnosed. A good treatment regimen would be?
   a. Repeated vinegar douches
   b. Metronidazole po x 7 days
   c. Gentamycin IV
   d. Oral penicillin
   e. Fluconazole po
Answer (B): Metronidazole for 7 days.
A 7 day course of metronidazole has a 95% success rate, whereas other treatments are less successful. A single dose of metronidazole can be tried but is less successful.

9. A 30 year old with advanced problems secondary to long-standing diabetes mellitus presents with a complaint of left eye pain and double vision. On exam, he cannot adduct his left eye to the right, but he can gaze to the left. Both pupils react normally to light. What accounts for his double vision?
   a. Macular degeneration
   b. Retinal detachment
   c. Infarcted cranial nerve III
   d. Infarcted cranial nerve VIII
   e. TIA

Answer (C): Infarct CN III
Vascular problems secondary to diabetes can pinpoint and nail even individual cranial nerves. Yipes. In this case, the inability to move the left eye to the right indicates that the oculomotor (CN III) nerve is affected, though the more well vascularized papillary portions of said nerve are spared.

10. A 65 year old woman, multiparous, complains of incontinence when she does weight lifting exercises at her local gym. She is now wearing Depends, it happens so often. Physical exam shows a cystocele. What other examination should be done to help determine the best approach to this incontinence?
   a. Intravenous pyelogram
   b. KUB
   c. Cystoscopy
   d. Postvoid residual urine volume
   e. Pap smear

Answer (D): Residual urine
Important in the evaluation of incontinence is the minimally invasive measure of postvoid residual volume. The other exams are expensive, have side effects, and don’t really answer the question you’re interested in. If the amount of residual is high, the woman may need intermittent Foley placement or possibly surgical repair of the cystocele.
6. Medicine – Nephrology

- Education leader.
  - Dr Ed Nord
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - AM labs should be ordered with each morning dialysis session.

- Competency-Based Goals and Objectives.

GOAL

- To manage renal patients (PC, ICS, PBL)

OBJECTIVES

- To understand renal failure (MK, PBL, PC)
- To understand dialysis (MK, PBL, PC)
- To understand renal transplant patients, pre and post op. (MK, PC, SBP)
- To understand how doses are adjusted in renal failure patients. (MK, PC)
- To provide appropriate follow-up. (SBP, P, PC, ICS)

- Evaluations.

  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation

  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.

  The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week

- Checklists.
  - Take report on overnight patients.
  - Write daily notes.
  - Communicate with primary team.

- Test.
1. A 65 year old man presents to the urology service for evaluation. He has non-insulin dependent diabetes mellitus, headaches, lower back pain (never did before), fatigue (noticeable because he works on his feet as a factory supervisor) and swelling of his ankles. His primary doctor did a 24 hour urine specimen and found he’s spilling 6 g of protein a day. The likely diagnosis here is:
   a. Acute renal failure
   b. Renal cell cancer
   c. Cirrhosis
   d. Multiple myeloma
   e. Anemia

Answer (D) Multiple myeloma
His presentation and the large amount of protein spilling are consistent with nephritic syndrome. He likely also has hypocalcemia, low thyroxine, and a microcytic anemia. The headache, back pain, and nephritic syndrome are all consistent with multiple myeloma.

Link to anesthesia: When a patient loses a lot of protein and their serum becomes “albumin poor”, then the pharmacokinetics of injected drugs changes. A simplistic way to look at this is – there is less protein to “mop up and hold” the drugs and so more “active drug is available”. You’ll study pharmacokinetics and pharmacodynamics with us until you’re blue in the face.

2. This same patient requires medication to control hypertension. His creatinine is 1.7. What is a good medication given his overall condition?
   a. ACE inhibitors
   b. Beta blockers
   c. Alpha blockers
   d. Combined alpha and beta blockers
   e. Furosemide

Answer (A) ACE inhibitors
This patient is likely developing a diabetic nephropathy in addition to his other problems. ACE inhibitors have been found to slow the progress of diabetic nephropathy so is a good choice for anti-hypertensive medication.

Link to anesthesia: We sure as hell want to make sure we don’t hurt the kidneys either, in the course of our anesthetic administration. The single best way to do that is to maintain adequate volume status during the case. This requires a thorough knowledge of all the I’s and O’s during a case (blood loss, insensible loss, NG drainage). Overdo it? Then the patient can go into congestive heart failure. Underdo it? Then the patient goes into renal failure. The “renal tightrope” can be very narrow!

3. An HIV+ patient is followed by the renal service for an abrupt spike in his creatinine. A kidney biopsy is performed and is most likely to show what kind of pattern?
   a. Collapsing glomerulonephritis
   b. Hydronephrosis
   c. Membranous glomerulonephritis
   d. Renal artery thrombosis with hemorrhagic interstitial nephritis.
   e. Normal biopsy.

Answer (A) Collapsing glomerulonephritis.
Sorry, anesthesia interns, you do have to know some pathology for USMLE Part 3 of the boards, and here is one small sampling of that awful situation. Don’t look to me for an explanation, this is just one of those things you have to memorize, like the Krebs cycle.

Link to anesthesia: We have precious little need to know pathology, but we have to know one tiny little bit of “pathology interaction”. When the surgeon sends off a specimen, don’t let the patient emerge from anesthesia until you know that the operation is really done. At times, pathology will call back and say “we need more” and you want to “still have the patient under anesthesia” when that call comes through.

4. Through a fantastic series of coincidences, you’re pulled from the Nephrology service to cover the Peds ER for a day (!). A 5 year old kiddo is brought in because of fevers at home and tugging his right ear. Exam shows a bulging tympanic membrane. The most likely causative agent is?
   a. Chlamydia
   b. Herpes simplex virus
   c. E coli
   d. Strep pneumoniae
   e. Coxsackie virus

Answer (D): Strep pneumoniae
Strep pneumoniae is the most common culprit in cases of otitis media. To treat or not to treat is hotly debated as docs get accused of “overtreating” and generating “superbugs”. But this kid would most likely get treated with amoxicillin for this infection.

Link to anesthesia: We do ear tubes all the time on an outpatient basis. It can be tough, in the preop clinic, because you “never get the kid when they’re not sick” (since their ears are always getting infected). So the kid’s sick, do you cancel? So you cancel, and the kid get’s sicker because his ears can’t drain! And round and round you go. Sooner or later, you just say “the hell with it”, bit the bullet, and get those damned ear tubes in!

5. You’re still manning the kiddie ER when a mother brings in her 4 year old child who has been scratching extensively at her chicken pox lesions. Exam shows weeping lesions on her face but she doesn’t look toxic. The most likely diagnosis is?
   a. Impetigo
   b. Lice
   c. Allergic reaction
   d. Eczema
   e. Psoriasis

Answer (A): Impetigo.
When kids pick and scratch at chicken pox lesions, these lesions can become secondarily infected with bacteria, that is, they develop impetigo. Treatment is cephalexin.

Link to anesthesia: Lesions around the mouth make it very tough for us to tape the endotracheal tube in. We’ll often have trouble with facial burns or else if a patient has a large sore from herpes simplex virus. Since you can’t tape the tube in, you can always tie it in place. Handy trick to know!

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.
6. A 40 year old woman is seen in your office and has a blood pressure of 155/90, but when she measures it herself (her daughter is an LPN) at home her pressure is only 126/80. The woman takes no meds and has a healthy lifestyle. What is the next best move?
   a. Start a dual anti-hypertensive regimen.
   b. Start ACE inhibitor alone
   c. Start thiazide alone.
   d. Do 24 hour ambulatory blood pressure measurement
   e. Work up for pheochromocytoma

   Answer (D): Ambulatory measure
   This patient is suffering from classic “white coat hypertension”, getting nervous at the doctor’s office and becoming hypertensive, whereas at home with her daughter, she is fine. She is still at risk for hypertension, though, so you should measure her blood pressure over 24 hours to see how long each day she actually is hypertensive.

7. How does Cushing disease lead to hypokalemia?
   a. High levels of corticosteroid lead to direct activation of the aldosterone receptor
   b. Low levels of corticosteroid lead to release of thyroxin
   c. High levels of corticosteroid lead to release of renin
   d. Low levels of ACTH lead to release of aldosterone
   e. High levels of ACTH lead to suppression of aldosterone

   Answer (A): High steroids → direct activation of aldosterone
   The high levels of corticosteroid lead to direct activation of the aldosterone receptor and when aldosterone is activated, this leads to the body “trying to hang on to volume”, so sodium is “held on to” and in exchange, potassium is “let go” resulting in hypertension and hypokalemia.

8. A previously healthy 45 year old accountant is admitted with cough, fever, and respiratory insufficiency. CXR shows a dense right upper lobe pneumonia. Which antibiotic regimen is most appropriate as cultures are getting done?
   a. Amphotericin
   b. Penicillin
   c. Vancomycin
   d. Ampicillin and gentamycin
   e. Ceftriaxone and azithromycin

   Answer (E): Ceftriaxone and azithromycin
   This serious pneumonia is best described as “community acquired pneumonia and the most likely agents are Strep pneumonieae or Legionella. Ceftriaxone and azithromycin provide the best coverage for these organisms.

9. A 53 year old alcoholic male presents with a large abscess in his gums causing such severe pain that he can hardly open his mouth. The best antibiotic coverage for this is?
   a. Amphotericin
   b. Penicillin
   c. Vancomycin
   d. Ampicillin and gentamycin
   e. Ceftriaxone and azithromycin

   Answer (B): Penicillin
The best coverage for an infection from oral flora is good old penicillin. Who knew such a retro drug still had a place in this time of 10th generation cephalosporins and God knows what else?

10. An indigent patient is “found down” on a cool autumn evening. On arrival to the ER, he is obtunded and unable to say anything other than moan. His heart rate is 42. What is the next best step in his evaluation and treatment?
   a. Assess ABC’s, measure his temperature.
   b. Assess ABC’s, draw a TSH
   c. Assess ABC’s, get a 12 lead EKG
   d. Assess ABC’s, draw troponins
   e. Assess ABC’s, give Narcan

Answer (A): Temperature
When a patient is brought in with exposure to cold weather, you, of course, assess the ABC’s, and once that’s done, you go to the most likely explanation for his obtundation and bradycardia – hypothermia. Measure his temperature and start warming maneuvers. Treat the simplest thing first!
7. Medicine – Elective

- Education leader.
  - Dr Susan Lane (as noted earlier, in case of doubt on Internal Medicine, go to Dr Lane)
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - As with consults, often get cannibalized from this.
  - Another good spot to “get the damned USMLE out of the way”.

- Competency-Based Goals and Objectives.

GOALS
- To manage patients with endocrine, rheumatologic or gastrointestinal disorders (MK, PC, PBLI, P, ICS, SBP)

OBJECTIVES
- To write daily progress notes (ICS, MK, PC, PBL, P)
- Communicate plan to primary team (ICS, MK, PC, SBP, PBL, P)
- Observe procedures relevant to the elective (MK, PC)

- Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation

The education leader is responsible for making sure all three are completed. If they are not completed, then Dr Gallagher will do them.

The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week

- Checklists.
  Write daily progress notes
  Communicate plan to primary team
  Observe a procedure relevant to the elective

- Test.
1. Summer is waning and and a 75 year old diabetic woman is admitted to the Medicine service with altered mental status, fever, a rash on her trunk and tongue fasciculations. MRI and EEG are normal and a lumbar puncture is essentially normal. The most likely diagnosis is
   a. Bacterial meningitis
   b. West Nile virus
   c. CSF leak.
   d. Multi-infarct dementia
   e. Central candidiasis

Answer (B) West Nile virus
End of summer makes a mosquito bite a possibility, and the base of the tongue fasciculations comes from inflammation at the base of the brain. Diabetes makes the patient immunocompromised. Diagnosis is sealed with a West Nile IgM titer on CSF.

Link to anesthesia: We have had to intubate these patients when the progress so far that they can no longer protect their airway. Special precautions (tight fitting mask) and isolation are important to make sure that you yourself do not catch this disease. Other cases (active TB, SARS) also require extreme care to make sure you do not fall ill.

2. A 19 year old college student presents to your clinic with a sore throat, fever of 101, and normal chest findings on exam. His throat is bright red and he has tonsillar exudates and his breath smells bad. He has tender cervical adenopathy but no cough. Based on this clinical exam, he likely has:
   a. Group A strep pharyngitis
   b. Epiglottitis
   c. Ludwig’s angina.
   d. Squamous cell CA of the tonsils
   e. Pneumonia

Answer (A) Group A strep pharyngitis
Telling viral pharyngitis from strep pharyngitis is difficult on clinical grounds, but the argument for strep is stronger when there is fever, tonsillar exudates, tender anterior cervical adenopathy, and no cough. All the other things listed are less likely.

Link to anesthesia: At an outpatient center, we are often faced with the dilemma of whether to cancel a case or not. If someone has a minor runny nose (allergic rhinitis) but is otherwise healthy looking, we proceed. But if a patient looks toxic like this, better to cancel the case, as intra- and post-operative respiratory complications can occur.

3. The best treatment for this college student’s condition is
   a. Broad spectrum antibiotics
   b. Tonsillar biopsy before proceeding.
   c. Penicillin
   d. Vancomycin
   e. Gentamycin.

Answer (C) Penicillin
No big mystery here, penicillin is the best drug for treating strep infections. If the patient is penicillin allergic, then erythromycin is a good second choice.
Link to anesthesia: Timing of antibiotics is an important part of the anesthetic course. Get the antibiotic in too early, and it peaks and drops off, providing insufficient coverage at the time of surgery. Get the antibiotic in too late, and you have not really provided prophylactic coverage. Ideally, the antibiotics are given within an hour of starting surgery.

4. You’re asked to consult on a 18 year old man who notes he is bruising easily and bleeding after he flosses. On exam, you can see bruises on his arms. Labs show a platelet count of only 40,000. What is the most likely cause of this?
   a. Sepsis
   b. Heparin induced thrombocytopenia
   c. Hemolytic uremic syndrome.
   d. Spherocytosis
   e. Immune thrombocytopenic purpura

Answer (E): ITP
Usually this occurs in kids, but can occur in “late kids” like this one. Immune thrombocytopenic purpura most often resolves spontaneously and you don’t need to give a platelet transfusion unless bleeding is problematic.

Link to anesthesia: Before we place a needle in a patient, we need to make sure they will not bleed excessively, particularly when we’ll be working around the spine. But we don’t need to get platelet counts on everybody, the history and physical are great tools for making sure someone’s coagulation status is OK. If they have no history of easy or abnormal bleeding or bruising, and they have no signs of same, then they’re good to go.

5. You are asked to give a patient some genetic advice. A man has hemophilia, requiring transfusions and affecting his joints. He just married a woman who has no history of hemophilia in her family at all. He is concerned about his own kids. What is the likelihood he will give hemophilia to a son?
   a. 25%
   b. 50%
   c. 0%
   d. 75%
   e. 100%

Answer (C): 0
Hemophilia is carried on the X gene, therefore, there is no chance that this man’s son will have hemophilia. As a father, he would give his Y gene to his son, therefore, no hemophilia. If he has a daughter, she will be a carrier.

Link to anesthesia: The field of anesthesia-genetics is just starting out. We know that malignant hyperthermia susceptibility runs in families, but it’s passed as “autosomal dominant with limited penetrance”, which, if you think about it, can mean damned near anything. We are just tiptoeing into genetic studies to see who is more likely to get nausea and vomiting, but practical applications of genetics to anesthesia are still a long way off. But who knows, maybe one day we’ll use this information all the time!

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.
6. A 70 year old woman has advanced directives that she is “do not intubate, do not resuscitate” and her primary physician confirms this. She is admitted to the ER in status epilepticus and is unable to protect her airway. She is at risk for aspiration and the question of “intubate or not” comes up. You should?
   a. Follow her advanced directives
   b. Call the hospital lawyer
   c. Involve clergy while you mask ventilate
   d. Call the family STAT and have them help with the call.
   e. Just do a cricothyrotomy but don’t “really” intubate.

Answer (A): Follow her directives.
If the patient has clear advanced directives, then you are ethically bound to follow the patient’s wishes. Just because she “needs intubation to fix this problem”, you can’t go against her advanced directives. Drawing in all sorts of other people or doing some half-assed maneuver is not acceptable.

7. A 31 year old, well-informed patient presents with purulent rhinorrhea. He’s done his work on the Internet and knows that treatment with antibiotics is controversial and “yes, this may be viral and may be self-limited”. But if you do go with antibiotics, which is the best choice?
   a. Penicillin po
   b. Gentamycin IV
   c. Ceftriaxome IV
   d. Piperacillin IV
   e. Amoxicillin po

Answer (E): Amoxicillin.
To antibiotic or not is indeed controversial, with most episodes of rhinitis, even purulent rhinitis, clearing by themselves. But the concern for an ascending infection, leading to serious sinusitis and even a CNS infection, is always there. So if you do treat, amoxicillin is a good choice.

8. Which of the following conditions are associated with hypercalcemia?
   a. Hyperparathyroidism
   b. Milk-alkali syndrome
   c. Hyperthyroidism
   d. Sarcoidosis
   e. All of the above

Answer (E): All.
The list of hypercalcemic conditions goes on and on – immobility, Paget disease, acromegaly, Addison disease, different cancers (lymphoma, renal, squamous cell) and excess of Vitamin A and D. Keep your handheld Internet access device nearby, it’s hard to remember all of these!

9. A trauma patient is brought in from an MVA. He appears in his 20’s and arrives in pulseless electrical activity. While CPR is initiated, the hunt for a cause begins. What is a cause of PEA?
   a. Hypervolemia
   b. Asystole
   c. Hypertension
   d. Acidosis
   e. Left ventricular hypertrophy
Answer (D): Acidosis
The 6 H’s and 5 T’s of PEA are:
H – hypovolemia, hypoglycemia, hypoxemia, hyper/hypokalemia, acidosis (H+), hypothermia
T – toxin, trauma, tension pneumothorax, tamponade, thrombosis (coronary or pulmonary)

10. A 4 year old girl is brought into the pediatric clinic by her parents. She had a “bad cold” with fever, but the temperature persevered and was “worse than the usual stuff we see”. Now she has developed red eyes (visible across the room), a bright red tongue, swollen and tender cervical nodes, and redness on both the palms of her hands and soles of her feet. What does this child have?
   a. Chicken pox
   b. Meningitis
   c. Coxsacke viral exanthema
   d. Measles
   e. Kawasaki disease

Answer (E): Kawasaki
Kawasaki is a generalized vasculitis, seen in children 4 years of age and under. The rash on the palms and soles, plus the “strawberry tongue” and conjunctivitis, along with the fever, all support the diagnosis.
8. Medicine – Wards

- Education leader.
  - Dr Susan Lane
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - Stay on top of discharge summaries! Outstanding discharge summaries beyond two weeks are forwarded to Drs. Glass & Gallagher
  - Pre-write progress notes and discharge summaries, when possible
  - Prepare for your co-interns clinic day by taking care of your work first
  - Get overnight sign out from the night float intern regarding overnight events and new admissions in the 15N conference room.
  - Social rounds around 8:15 AM, bring paperwork with you to work on while the other interns present.
  - Noon conference starts at 12:30 (don’t ask how they came up with that)
  - During clinic days, your co-intern and resident will try to dump all their work on you. Make sure they do their discharge paperwork the night prior so you don’t end up doing it for them.

- Competency-Based Goals and Objectives.

GOALS

- To manage Internal Medicine patients. ( PC, MK, ICS, PBL, P, SBP )
- To manage hospital complications ( PC, MK, ICS, PBL, P, SBP )

OBJECTIVES

- To assess patients daily. ( PC, MK, ICS, PBL, P )
- To understand common syndromes in hospitalized patients. ( PC, MK, PBL, SBP )
- To recognize and treat iatrogenic problems. ( PC, MK, ICS, PBL, P, SBP )
- To work on a team ( SBP, P, ICS, PBL )
- To develop skill in common hospital procedures, such as IV placement. ( PC, MK, PBL )
- To learn pharmacology ( MK )
- To send patients to appropriate follow-up. ( SBP, ICS, PC, MK, PBL, P )

- Evaluations.
New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation

The education leader is responsible for making sure all three are completed. If they are not completed, then Dr Gallagher will do them.

The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week

- Checklists.
  Admit patients
  Take overnight report from other residents
  Discharge patients to appropriate follow up
  Manage problems on the floor
  Recognize signs of respiratory/hemodynamic insufficiency

- Test.

1. A 25 year old grad student presents for evaluation of genital lesions. They first appeared a week ago, about 2 weeks after he had engaged in unprotected sex with a prostitute. The lesions are nontender papules with elevated edges surrounding ulcerated craters. He has bilateral inguinal lymphadenopathy but overall feels healthy. Which is true?
   a. Acid fast bacilli will be found in these lesions.
   b. This is consistent with genital herpes.
   c. If the lesions clear, he does not need treatment.
   d. This patient is non-infective.
   e. This disease has a latent phase and different stages.

Answer (E) Latent phase and different stages
The history and physical exam are consistent with primary syphilis. The causative agent is Treponema pallidum, has a latent phase, and goes through different stages. The lesions are chancres and are highly infectious. Left untreated, this can progress to secondary then tertiary syphilis, with a host of complications, including death.

Link to anesthesia: We are not involved in the medical treatment of syphilis, but this serves as a good reminder to use universal precautions, including using gloves when touching patients. An open cut or sore and you could be contaminated by an agent from a patient, so keep those gloves on.

2. You treat the patient with penicillin. How does penicillin kill bacteria?
   a. Interfere with cell wall synthesis
   b. Interfere with cell division.
   c. Bind to mitochondria to “starve the cell of energy”.
   d. Interfere with arachadonic acid metabolism.
   e. Interfere with cholesterol metabolism.

Answer (A) Cell wall synthesis
On Part 3 of the USMLE, you have to go back to your Microbiology days and Basic Pharmacology principals to go over the “how” of different antibiotics. Penicillin interferes with cell wall synthesis, Cephalosporins use a similar mechanism to cause cell death.

Link to anesthesia: Although we don’t need to be ID experts in the OR, we need to use common sense when hanging antibiotics. Watch for allergies (duh!) and be aware that allergies are NOT limited to antibiotics. In anesthesia, the number one cause of severe allergic reactions is (believe it or not) our neuromuscular blocking agents!

3. A few hours after getting treated for his disease with penicillin, the patient calls back and complains of headache, fever, and muscle aches. What should be done at this point?
   a. This is consistent with anaphylaxis, call 911 and have an ambulance pick him up.
   b. Tell the patient to take acetaminophen and rest.
   c. Schedule the patient for skin test to see about allergies.
   d. Call in a prescription for steroids.
   e. Call in a prescription for inhaled beta agents, as this patient is heading for an asthmatic episode.

Answer (B) Acetaminophen.
This is a common reaction after treatment for syphilis is started – the Jarisch-Herxheimer reaction, with these exact symptoms. This is self-limited and resolves in a few hours. Acetaminophen and assurance is all that is needed.

Link to anesthesia: We’re unlikely to get a call about this, but we will get calls from home when patients are discharged from, say, an ambulatory surgery center. Common problems that will result in phone calls are pain (particularly when a block wears off), nausea, and sore throat.

4. A 27 year old woman becomes depressed after the loss of a pregnancy. She comes to clinic stating that she took three entire bottles of acetaminophen because “she wants to be where her baby is”, but not she is having second thoughts. The primary organ at risk here is?
   a. Kidney
   b. Brain
   c. Heart
   d. Liver
   e. Immune system

Answer (D): Liver
Acetaminophen in massive doses overwhelms the liver’s capacity to metabolize properly, and toxic metabolites of acetaminophen accumulate, causing hepatic cell death. Treatment is emptying the stomach of residual tablets and administration of N-acetylcysteine.

Link to anesthesia: We have to primary care doctors at times, and are sometimes in a position to remind the primary docs of such things as “Don’t just treat the overdose, get the remaining pills out of the stomach”. This can’t be done with just and NG tube (the holes are too small), you need to put down a gigundo Ewall tube so you can get the remaining pills out. This often requires prior intubation to keep the airway secure.

5. A poor prognosis in this case of acetaminophen overdose is predicted by what?
   a. pH less than 7.3
   b. Concomitant COPD
c. Vomiting
d. At least three indicators of depression on DSM-4
e. High urine output.

Answer (A): pH < 7.3
Progression to liver failure (and death, absent a liver transplant) is indicated by acidosis (pH<7.3), elevated serum lactate (> 3.5 mmol/L), coagulopathy or renal failure. A nomogram, called the Rumack-Matthew nomogram, puts patients into possible, probable, or high risk categories.

Link to anesthesia: The mention of acidosis here brings up a useful thought to carry with you throughout your entire anesthesia career. “If you think you might need a blood gas, get one.” Its close corollary is “In case of doubt, get a blood gas”. In any case where things are going south or changing fast, get a blood gas, you’d hate to be flogging a patient with inotropes galore when the real problem is acidosis.

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. During a well baby visit, a 4 month old boy has only one testicle palpable in his scrotum. Appropriate treatment at this point is?
   a. Observation, this testicle should descend over the next 4 months.
   b. Karyotype as this is likely XXY syndrome.
   c. Surgical treatment to bring the testicle into the scrotum.
   d. Warm compresses as this will help the testicle descend on its own.
   e. Excision of the descended testes as this is likely malignant.

An undescended testes is associated with infertility – the sooner the testes is returned to the scrotum, the more likely this will not be a problem. Also, these testes are more likely to develop carcinoma later, so lifelong examination and vigilance is necessary.

7. Which of the following cancers is associated with an increased risk of breast cancer?
   a. Ovarian cancer
   b. Small cell cancer of the lung
   c. Osteosarcoma
   d. Non-Hodgkin’s lymphoma
   e. Transitional cell cancer

Answer (A): Ovarian CA
Breast cancer has certain genetic links (BRCA1 and BRCA2 genes are linked to breast CA, as is the tumor suppressor gene P53). Also, having certain kinds of cancer puts a patient at higher risk of developing breast cancer (ovarian CA).

8. A woman with celiac sprue finally goes crazy from her severely limited diet and goes on an eating binge which results in severe diarrhea. What kind of metabolic situation will arise from this severe exacerbation of diarrhea?
   a. Non-anion gap alkalosis
   b. Non-anion gap acidosis
   c. Increased anion gap alkalosis
   d. Increased anion gap acidosis
e. Hyperkalemic alkalosis

Answer (B): Non-anion gap acidosis
Diarrhea is rich in bicarbonate and potassium, thus the anion gap does not increase. She will develop a hypokalemic acidosis. Since ions are being “exchanged” rather than being “added”, the total number of anions stays the same.

9. A 60 year old man gets into a minor MVA because he “didn’t see the other car coming” from his peripheral vision. Now he sees his doctor because he has noted a gradual loss of peripheral vision. The concern here is glaucoma, what will the fundoscopic exam reveal?
   a. Retina which has “wrinkled” up.
   b. Macular degeneration
   c. Increased cup to disc ratio
   d. Decreased cup to disc ratio
   e. Neovascularization

Answer (C): Increased cup to disc ratio
Increased cup to disc ratio is the classic finding of a patient with glaucoma. A wrinkled up retina is seen in retinal detachment, macular degeneration is seen in, well, macular degeneration. Neovascularization is characteristic of diabetes.

10. Treatment of this man’s condition should include?
   a. A pulse of high dose steroids with rapid tapering
   b. Immediate surgery
   c. Laser retinal treatment
   d. Atropine
   e. Timolol maleate and pilocarpine

Answer (E): Timolol and pilocarpine.
Beta adrenergic blockers (timolol) cause a decrease in the production of aqueous humor as do carbonic anhydrase inhibitors. Parasympathetic agents (pilocarpine) facilitates outflow of aqueous humor. Both together help decrease pressure in the eye, the goal of glaucoma treatment.
9. Medicine – VA

• Education leader.
  o Dr Andre Haddad
  o Dr Gallagher
  o Dr Delemos

• Tips.
  - VA nursing staff is sometimes slower than SBUH, reserve expectations to move mountains

• Competency-Based Goals and Objectives.

GOALS

• To manage the acutely ill (MK, PC, ICS, PBL, SBP, P)
• To learn problems specific to the veteran population (MK, PC, PBL, SBP)

OBJECTIVES

• To do daily assessments (MK, PC, PBL, P, ICS)
• To work as a team (SBP, PBL, ICS, P)
• To develop skill in placing IV’s. (PC, PBL)
• To know how to adjust meds in renal/liver failure patients (MK, PC)
• To triage and discharge appropriately (MK, ICS, SBP)

• Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation
The education leader is responsible for making sure all three are completed.
If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week

• Checklists.

Sign out patients from overnight coverage
Update patients by reviewing labs, studies, and physical exam
Perform histories and physicals
Write discharge orders and arrange appropriate follow up
Transfer critically ill patients to the ICU

• Test.
1. A 47 year old HIV+ patient is admitted to the VA hospital for treatment of a varicella-zoster infection. His past history is remarkable for chronic renal insufficiency which is followed but does not require dialysis. On the 5th day of treatment for his VZ infection, the patient develops acute renal failure. What is most likely the cause?
   a. Allergic reaction to antiviral therapy.
   b. Gram negative sepsis
   c. Precipitation of acyclovir in the renal tubules
   d. Shock from overwhelming VZ sepsis
   e. Diabetes insipidus.

   Answer (C) Acyclovir precipitation
   Acyclovir is nephrotoxic when given intravenously. The drug can precipitate out in the renal tubules and cause renal failure. This is more likely when the patient has pre-existing renal damage and if the patient gets dehydrated.

   Link to anesthesia: A classic dilemma which arises again and again in anesthetic practice is “Should I give more fluids or not?” Keep in mind just how hard it is to treat the problems associated with “underhydrating” \(\rightarrow\) renal failure, stroke, death. Compare that with the problems associated with “overhydrating” \(\rightarrow\) pulmonary edema, treated with an endotracheal tube and some furosomide. I don’t know about you, but I’d rather treat the over- than the underhydrated.

2. A resident on call last night had a dirty needle stick on a patient who is HIV+. His chance of seroconverting is what?
   a. 50%
   b. 20%
   c. 5%
   d. 0.3%
   e. 0.001%

   Answer (D) 0.3%
   Seroconversion after a dirty needle stick with HIV results in a 0.3% seroconversion rate. That chance of seroconversion is higher if the patient has a high viral titer, that is “all HIV patients are not equally likely to make you seroconvert.” A hepatitis B stick results in a 6 – 30% seroconversion rate, and for a hepatitis C stick about 1.8% Prophylaxis may lower the incidence of seroconversion.

   Link to anesthesia: We’re sticking people all the time, so dirty needle sticks are very much a concern of ours. The best course is prevention, so learn safe needle handling (don’t recap, throw away sharps right away) during your internship so you can have a LONG healthy anesthetic career.

3. A cave explorer in his early 20’s, otherwise healthy, develops cough, fever, and dyspnea, and his CXR has diffuse interstitial infiltrates. The most likely cause of his condition is which agent?
   a. Pneumocystis carinii
   b. Staph aureus
   c. Histoplasma
   d. E coli
   e. TB

   Answer (C) Histoplasma
Crawling through bat guano can stir up release of the Histoplasma infective agent, which can be inhaled and lead to this condition. The patient is otherwise healthy, making the other agents less likely.

Link to anesthesia: You would not want to do an elective operation on a patient with pneumonia. Medical treatment before an operation should always follow this mantra “is this patient in optimal condition for this elective case”. If the answer is “No”, then wait until they are optimal. Of course, if the case is emergent (life, limb, or sight at risk) then you proceed even if the patient is not optimized.

4. A 30 year old woman is admitted to the VA hospital with septic shock, likely linked to a brown recluse spider bite which got badly infected. Her blood pressure is 75/60, HR 135, Sat O2 98 %, and she appears flushed. Initial treatment should be?
   a. Norepinephrine infusion.
   b. Vasopressin infusion.
   c. Intubate.
   d. IV’s and large amounts of fluids administered.
   e. Steroids

Answer (D) Fluids
The mainstay of shock treatment is, first, find the thing causing the shock and fix that (duh), so, of course treat the infection with appropriate antibiotics. But right now, the whole game hinges on resuscitating the patient, and a patient in septic shock can require huge amounts of fluids (5 – 10L), so start that resuscitation first.

Link to anesthesia: By the end of your training, you will treat plenty of people in shock. First you have to figure out what kind of shock (cardiogenic, septic, anaphylactic, hypovolemic), then shift into resuscitation mode. Most often the initial treatment will be fluids. Put in big IV’s and get that fluid going!

5. A 39 year old man who “avoids doctors unless I absolutely have to” comes to the clinic with complaints of chronic diarrhea. He’s “never had good ones” but lately this is much worse. Stools are greasy, not bloody, and voluminous. He sometimes has crampy pain with this and he has lost 20 pounds “which I couldn’t afford to lose anyway” over the last 6 months. Exam shows papulovesicular lesions over the extensor surfaces. The most likely diagnosis is?
   a. Colon CA
   b. Munchhausen’s syndrome
   c. Celiac sprue
   d. Crohn’s disease
   e. Giardiasis

Answer (C): Celiac sprue
The differential of steatorrhea and weight loss is extremely long, but when accompanied by this kind of rash over the extensor surfaces, this makes celiac sprue more likely. A small bowel biopsy is the best way to peg the diagnosis. This patient will benefit from a gluten free diet.

Link to anesthesia: When we have to treat a patient who has come in like this (diarrhea for a long time), we have to be mindful of the great fluid and electrolyte losses they may have incurred. We often need some form of central monitoring (CVP) to get a handle on where we are with the patient to avoid superimposing our anesthetics (depressants) and positive pressure ventilation (impedes venous return) on a patient already hypovolemic.
6. A 65 year old woman notices a tremor, which seems to be worse when she reaches for things or tries to pick things up. Every evening she has a little port (20 year Tawny Port, none of the cheap stuff) and she notes that she can reach for that second glass with no tremor. What is the first step in evaluation?
   a. CSF exam for proteins
   b. Initiation of anti-Parkinson’ medications
   c. MRI of brain and spinal cord
   d. Thyroid function tests
   e. Glucose challenge test

Answer (D): Thyroid function tests.

The fact that the tremor is “intention tremor” and not “resting tremor” argues against Parkinson’s. The improvement with alcohol steers the diagnosis to intention tremor, which responds to treatment with beta blockers. But before you initiate such treatment, you need to rule out a more mundane cause of tremor – hyperthyroidism.

7. A 49 year old man with poorly controlled diabetes has had a sore heel for about a week, and he noticed there is drainage in his socks. You see an ulcer in his heel. What is the most cost-effective examination to do next?
   a. Probe the ulcer and see if you can feel bone.
   b. MRI of foot
   c. Spinal tap to look for CSF spread
   d. Technetium scan of bones
   e. CT of foot

Answer (A): Probe for bone.

No need to go off the deep end and spend a fortune on a bunch of complex exams. By simply probing the ulcer and seeing if it extends to the bone, you can get an idea of whether this is likely spread all the way up to the bone and caused osteomyelitis.

8. A 70 year old woman notes that she is “spotting, like I did when I sputtered out at the change of life”. This vaginal bleeding is light and painless. She should now receive?
   a. Estrogen therapy
   b. Pregnancy test (to look for hydatidiform mole, I don’t really think she’s pregnant!)
   c. OB referral for endometrial biopsy
   d. Observation only since the bleeding is so light
   e. CT of the abdomen

Answer (C): OB referral.

Post-menopausal bleeding, no matter that it is light and painless, is always a concern, since endometrial cancer may be the cause. She needs a referral and endometrial biopsy. Hope you got a kick out of my comments on (B)! These tests should be fun, not an exercise in misery!
9. What is consistent with the “window” of hepatitis B serologies?
   a. Hepatitis B surface antigen is present and nothing else is present
   b. Hepatitis B surface antibody is present and nothing else is present
   c. Hepatitis B core antibody is present and nothing else is present
   d. Hepatitis B e antigen is present and nothing else is present
   e. Hepatitis B surface and Hepatitis B core antibody are present

Answer (C): Hep B core antibody only.
In the window, usually 4 – 6 months after infection, when the hepatitis B surface antigen has been cleared out of the bloodstream but the hepatitis B surface antibody has not yet appeared. If the hepatitis B core antibody is present, then you know the virus has been “seen”.

10. A 67 year old man comes to the hospital complaining of occasional chest pain and three episodes where he felt like he might pass out. His physical exam is remarkable for delayed carotid pulses and a loud systolic murmur along the left sternal border. His history and physical indicate likely?
   a. Endocarditis
   b. Ruptured mitral valve leaflet
   c. Aortic regurgitation
   d. Aortic stenosis
   e. Aortitis

Answer (D): Aortic stenosis
His symptoms are consistent with aortic stenosis, since he’s had symptoms consistent with ischemia as well as near syncope (the stenotic heart can thicken and “outrun” its coronary supply). The murmur location, timing, and delayed pulse all indicate a “tight exit” through the aortic valve.
10. Surgery – VA SICU

- Education leader.
  - Dr Joseph Sorrento
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - Expect to be in and out of OR in AM and in surgery clinics in PM
  - VA SICU is a misnomer, this is really a general surgery rotation.

- Competency-Based Goals and Objectives.

Goals:
- Manage surgical ICU patients (MK, PC, ICS, P, SBP, PBL)
- To assess and treat respiratory insufficiency (MK, PCS, PBL)

Objectives
- To read appropriate articles pertaining to patient’s illness (PBL, P, MK)
- To initiate patient on parenteral nutrition (PC, MK, PBL, ICS)
- To prepare patient for intubation and mechanical ventilation (PC, MK, PBL, ICS)
- To interpret data from invasive lines (central venous and arterial) (PC, MK, PBL)
- To interpret blood gas derangements (PC, MK, PBL, ICS)
- To interpret electrolyte and glucose derangements. (PC, MK, PBL, ICS)
- To appropriately write TPN orders. (PC, MK, ICS, PBL)
- To work as a team member (SBP, PC, ICS, PBL, P)

- Evaluations.

New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
The education leader is responsible for making sure all three are completed. If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week
• Checklists.
  Place peripheral IV’s.
  Complete TPN orders
  Assist in securing airways
  Present patients on rounds in concise and complete manner.

• Test.

1. A 45 year old fisherman who works in the Long Island sound hooks his hand with a dirty fish hook and is admitted via the VA ER straight to the ICU, for his hand looks black and necrosis appears to be setting in. What is the most likely agent causing the infection in this salt water fisherman?
   a. Vibrio vulnificus
   b. Group A strep
   c. Enterococcus
   d. Staph epidermidis
   e. Clostridium difficile

Answer (A) V. vulnificus
Salt water contaminated wounds can develop quickly spreading, limb-losing infections from Vibrio vulnificus, which appear as gram negative, comma shaped bacteria. Treatment is extensive debridement or even amputation, plus treatment with doxycycline and a third generation cephalosporin.

Link to anesthesia: This case would come to us emergently, possibly for fasciotomy, so we need to know the implications of compartment syndrome. When the compartment is released, a flood of potassium (from dead cells) and acid (ditto) happens, and this can drop the pressure and lead to rhythm disturbances.

2. As if this guy didn’t have enough trouble, as he was hurrying back in from the Long Island Sound, his pet cat on the boat decided to bite him as well. The cat is an outdoor cat that sort of comes and goes as it pleases, roaming the docks and nearby woods. What agent should be considered in the care for this luckless fisherman?
   a. Rabies
   b. Coccidioides
   c. Group G strep
   d. Enterococcus
   e. Chlamydia

Answer (A) Rabies
This cat is out in the woods, all over the place, who knows. Plus, the cat has just now decided to bite, so he may well be under the influence of rabies now. The patient should have his cat bite cleaned out and should receive prophylaxis for rabies as well.

Link to anesthesia: Rabies is a real “orphan disease” when it comes to anesthesia. No way on earth anyone’s had enough experience to say “When you are operating on someone who has rabies, be sure and do this kind of anesthetic”. So you are left in this case (as in so many other cases where we have no guidelines or inadequate experience to draw any meaningful conclusions) with just saying “Provide reasonable care.” Sounds inadequate, but what else can you do?
3. A 71 year old patient in the VA ICU is status post esophagectomy and is 2 days out. As you are examining him for possible extubation, you look over his entire clinical situation. Which of the following argues AGAINST extubating him?
   a. Normal neurologic status.
   b. Respiratory rate of 12
   c. Inability to clear secretions.
   d. Stable hemodynamics.
   e. Negative inspiratory force of 30 cm H2O.

Answer (C) Inability to clear secretions
All the other criteria account for a good clinical extubation scenario. But if the patient cannot clear or handle secretions, then this is a setup for aspiration/pneumonia soon after extubation. Just what you don’t need in a recent esophagectomy.

Link to anesthesia: We extubate every day in the OR. Prior to extubating, you basically have to answer the question “Can this patient get by without a tube?” (just like you do in the ICU). Can they breathe well (respiratory mechanics OK), can they protect themselves (neuro OK), is there anything mechanically I should worry about (severe edema, abnormal airway anatomy). In case of doubt, leave it in!

4. A 60 year old patient with long-standing alcoholism is admitted with bloody and profuse vomiting. He has suffered severe GI bleeds in the past. What is the most important first measures when this patient is admitted to the VA SICU?
   a. Place a transjugular shunt (TIPS)
   b. Contact the transplant team for STAT listing on the transplant list.
   c. Assess patency of the airway and institute fluid resuscitation.
   d. Start dialysis to prevent hepato-renal syndrome.
   e. Start anti-ammonia therapy to prevent development of encephalopathy.

Answer (C) Airway and resuscitation
First things first, always remember ABC. A patient in this condition may, if neurologically impaired (from hypotension or encephalopathy) fail to protect his airway, so this must be assessed first. Then you must replace the amount of blood the patient has lost to prevent cardiovascular collapse.

Link to anesthesia: When we are called to secure the airway of the patient with profound hematemesis, we may be in for a rough ride. Be sure to protect yourself from the blood which may, literally, be flying all over the place. Eye protection, gown, and (duh) gloves. Visualization may be tough and you may (don’t get grossed out here) have to “lift the larynx out of the blood” to get a good view of the cords. Yuck!

5. If the patient continues to bleed, what are the endoscopic options for controlling the bleeding?
   a. Sclerotherapy and banding.
   b. Endoscopic retrograde pancreocholangiography.
   c. Exploratory laparotomy.
   d. Colectomy.
   e. Iced slush per esophagus

Answer: (A) Sclerotherapy
Since the source of bleeding is most likely esophageal varices, the endoscopic options are sclerotherapy, banding, and balloon tamponade. Answers C and D are not endoscopic, and iced slush is not a treatment option.
Link to anesthesia: When a patient with esophageal varices comes to the OR, we have to be aware that “things we put in the esophagus could stir up trouble”, so NG tubes, temp probes, and transesophageal echo probes could, theoretically, stir up bleeding. But in a curious twist, the presence of esophageal varices is NOT, repeat NOT, a contraindication to placement of a TEE probe. (But I’m always scared when I place it in such a patient.)

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. Summer is off to a good start, and your potato salad (sitting out in the sun on a picnic table) is the hit of the church social. 2 hours later, the entire congregation is fighting for the Porta-Potties as diarrhea is rampant. The most likely causative agent in your (now reviled) potato salad is?
   a. Staph aureus
   b. Staph epidermitis
   c. Herpes simplex virus
   d. Clostridim difficile
   e. Listeria

Answer (A): Staph aureus.
The timing of “Porta Potty here I come!” helps determine the offending agent. S aureus causes nausea, vomiting, and diarrhea within 1 – 6 hours. Salmonella has a longer incubation, 16 hours. Next time keep that damn stuff out of the sun! And easy on the mayonannaise!

7. A 50 year old man is admitted to the ICU with sepsis and progresses to respiratory failure. His urine output continues to drop in spite of volume replacement. What would make you throw in the towel and start renal dialysis?
   a. Severe hypokalemia
   b. Contraction alkalosis
   c. Volume overload
   d. Creatinine that rose to 3.7 mg/dL
   e. Need for furosemide.

Answer (C): Overload.
Indications for dialysis are severe hyperkalemia (this can lead to cardiac standstill), acidosis (ditto), volume overload, and uremic pericarditis. An absolute number of creatinine at which you dialyze is hard to nail down, but you obviously follow the trend!

8. A 28 year old G2P1 woman is admitted in labor. Her cervix is completely dilated but after 1 hour of pushing, she has made no progress. She is tired, but otherwise in no distress, and the fetal heart traces are reassuring. What is the most likely reason for her prolonged labor?
   a. Hypovolemia
   b. Herpetic infection
   c. Bifid uterus
   d. Cephalopelvic disproportion
   e. Inadequate analgesia

Answer (D): CPD
Common things happen commonly, and if the kiddo’s head is just plain too big for the pelvic opening, then no progress is happening and will not happen. Time to “Fix Bayonets” and go for the C-section.

9. A 31 year old neurosurgery resident is surprised and amazed when she develops a pulmonary embolus “out of the clear blue sky”. She lacks risk factors, is trim and physically active, though she does take oral contraceptives. The most likely cause of this “PE from nowhere” is?
   a. Antithrombin III deficiency.
   b. Factor V Leiden mutation
   c. Estrogen producing tumor
   d. Unnoticed trauma to a lower extremity.
   e. Diet high in fats.

Answer (B): Factor V Leiden mutation.

Idiopathic venous thromboses can be due to a previously unsuspected hypercoagulable state. The most common inherited hypercoagulable state is factor V Leiden mutation, where a single substitution alters protein C’s ability to degrade an activated coagulation factor. The mutation plus oral contraceptives increases the risk of PE significantly.

10. She stops her oral contraceptives, is started on coumadin, and is compliant with follow up. That is, until she gets pregnant (in spite of being warned of the risks). How should she handle her anti-coagulation at this point.
   a. Stay on the same dose of coumadin.
   b. Double her dose of coumadin and have an INR drawn in 2 weeks.
   c. Admission to the hospital for IV heparin.
   d. Stop the coumadin and start subq heparin
   e. Stop the coumadin, don’t start heparin.

Answer (D): Stop coumadin, start subq heparin.

Coumadin is associated with congenital anomalies, therefore should be stopped immediately. But the risk for recurring venous thrombosis/pulmonary embolus is still present, so she can’t just forget about anti-coagulation, so she should start subq heparin.
11. **Surgery – VA**

- Education leader.
  - Dr Joseph Sorrento
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - Prepare floor work by noon for clinics in the afternoon
  - Expect to be in and out of OR in AM and in surgery clinics in PM
  - Good rotation! You get to first assist, practice suturing and knot tying.
  - Tons of clinic.

- Competency-Based Goals and Objectives.

  These are the same at the VA, Stony Brook, Winthrop and Vascular.

  **Goals:**
  - Manage patients pre, intra, and postop. (MK, PC, ICS, SBP, PBL, P)
  - Function as a team member (P, SBP, PBL, ICS, PC)

  **Objectives:**
  - Become adept at placing peripheral intravenous lines. (PC, MK, PBL)
  - Communicate effectively with staff, colleagues, patients, and family members. (ICS, P, SBP)
  - Write clear and complete notes. (ICS, PBL, P, PC)
  - Manage pre-op preparation (assure patients are ready for elective surgery) (PC, MK, PBL, SBP, P, ICS)
  - Assist intraoperatively (sterile technique, working knowledge of case being done) (PC, MK, PBL, ICS)
  - Assess and treat common postop problems (pain, nausea/vomiting, oliguria) (MK, PC, PBL, ICS)

- Evaluations.

  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation

  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.

  The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week
Checklists.
IV’s.
Central lines.
Complete notes.
Clear presentations.

Test.

1. A 65 year old man is admitted with general feeling of malaise and is found to have a colonic tumor. Preop he has coag studies and has a prolonged PTT but a normal PT. In working up the cause of this prolonged PTT, what is the next best test to do.
   a. Do a direct thromboplastin assay.
   b. Check for HIT.
   c. Check a PTT 1:1 mix with normal plasma and 1 hour incubation.
   d. Do a liver biopsy.
   e. Measure Christmas factor.

Answer (C) Mix test.
If you mix the patient’s plasma with normal plasma, the thinking is simple – if the test normalizes, that means you have a MISSING factor. If the test does not normalize, then there must be an INHIBITOR is present. This is the easiest way to start the ball rolling on narrowing down the cause of the coagulopathy.

Link to anesthesia: We are forever facing patients with a host of bleeding problems, from dilutional thrombocytopenia (after massive transfusion), to immunological issues (heparin-induced thrombocytopenia), to a host of inherent deficiencies and inhibitors. The “Reader’s Digest” version of hematology for anesthesiologists is – we need to fix those problems before proceeding with a block (can cause troublesome bleeding) or the operation itself (talk about troublesome bleeding!).

2. A 30 year old man with difficult-to-control diabetes is admitted with a non-healing sore on his foot. His glucose is found to be drastically elevated. The team is concerned about sending him to the OR with his glucose so high. What is the most likely reason for this jump in blood glucose?
   a. Patients with infections tend to suffer an increase in glucose.
   b. Outdated insulin.
   c. The patient is refusing to take his insulin.
   d. He is taking nothing po.
   e. The glucometer is inaccurate.

Answer (A) Infection raises glucose
Infections are classic for throwing diabetes out of control. The problem is, if you try to solve everything medically without treating the cause of the infection, you can end up chasing your tail and getting nowhere, as you give more and more insulin, and the infection remains there.

Link to anesthesia: Yes, of course, you’d like the glucose under good control before you do the operation (risk of DKA, worsening wound healing), but you have to do the operation to clean up the infection to get the diabetes under control, so, swallow hard and do the operation. It is “the surgical cure” to “the medical problem”.

53
3. A patient is admitted to the surgical service at the VA for rule out acute abdomen. He is found to have sickle cell disease and the plan is watchful waiting and medical treatment, but he stays on the surgical service. His urinalysis after hydration shows a specific gravity of 1.010. Why is this?
   a. Diabetes insipidus from a pituitary infarct.
   b. Congestive heart failure.
   c. Acute renal failure
   d. Isosthenuria, a normal finding in sickle cell patients
   e. Urosepsis

Answer (D) Isosthenuria

Sickle cell patients suffer repeated infarcts in their renal papillae. As a result, they develop isosthenuria, the inability to concentrate their urine.

Link to anesthesia: We often follow urine output to tell us of the adequacy of our volume resuscitation. But if the kidneys are unable to concentrate their urine (as in this sickle cell patient), then the “urine output as handy monitor” is lost. They will keep spilling the same amount of urine, even if they’re volume depleted, and you might be in for a nasty surprise when they suddenly have a cardiovascular collapse that you didn’t see coming!

4. A 69 year old man with COPD has a large ventral hernia repaired and closed with running sutures. He is discharged on day three, but comes back with a lot of serous drainage from the incision and a feeling that “something popped in there”. The likely diagnosis is what?
   a. Colonic infarction.
   b. Small bowel obstruction
   c. Dehiscence
   d. Gallstones
   e. Atelectasis

Answer (C) Dehiscence

The running suture is a red herring, since running/interrupted, there is no real advantage to one over the other in preventing dehiscence. With COPD, patients can cough a lot, and this can lead to dehiscence.

Link to anesthesia: A real tough problem for us in anesthesia is “the smooth wakeup” in the COPD patient after some kind of hernia repair. If they wake up on the tube and cough like crazy (as COPD patients tend to do), then the suture line can break and the surgeons will kill us. There’s no magic way to do this, but a well-narcotized wake up lays the foundations for “smoothness” and some intravenous lidocaine also prevents them from coughing and is helpful.

5. A recent recruit falls on his head during training and comes to the nearby VA for evaluation. He is making sounds but no words, opens his eyes to pain, and does not withdraw to painful stimulation, only does flexion. His Glasgow Coma Scale score is:
   a. 9
   b. 8
   c. 7
   d. 6
   e. 5

Answer (C) 7
He gets 2 points for eye opening, 3 points for motor response, and 2 points for verbal response. The GCS uses eye opening, motor response and verbal response to assess the degree of coma, with certain scores for different activities.

Link to anesthesia: The magic number for us as anesthesiologists is 8. Once a patient is 8 or below in the GCS, that means they cannot protect their airway and must be intubated. We’ll often find ourselves having to intubate an injured patient with no good idea of their C-spine status or what is going on inside their skull. But alas, you can’t let them aspirate or lose that airway, so intubate we must!

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. An anesthesia resident tries to be the most valuable player on the soccer team and goes all out for the ball. Unfortunately his foot lands on the ball and his knee twists sharply. He’s not sure which way it went, but he felt a distinct “pop” followed by quick swelling and intense pain in his knee. Which injury likely occurred?
   a. Tib-fib fracture
   b. Patellar dislocation
   c. Anterior cruciate ligament tear
   d. Posterior cruciate ligament tear
   e. Sprain of knee joint

Answer (C): Anterior cruciate tear. Athletes are forever twisting their knees. The anterior cruciate ligament is the most likely to tear, and the history of a “pop” with immediate pain and swelling is nearly pathognomonic.

7. Treatment of the stricken hero should include?
   a. Immediate drainage of the effusion
   b. High dose steroids to decrease swelling
   c. Gram positive antibiotic coverage to prevent intra-articular infection
   d. NSAIDS, knee brace, and crutches
   e. Admission for immediate repair

Answer (D): NSAIDS, knee brace, crutches. Before you do anything, you want the swelling to go down and you want to give symptomatic relief. The brace and crutches will allow the patient to ambulate with less pain (though encourage rest and leg elevation!) and NSAIDS will help. Drawing off the effusion will do no good as it will just reaccumulate, and steroids may impair healing. The wound is closed, so no need for antibiotics. The surgeon will not want to operate until the edema is down.

8. During a routine prenatal visit, a 26 year old woman is found to have polyhydramnios. She is prescribed indomethacin to decrease production of amniotic fluid, but is not to take this indomethacin after 34 weeks’ gestation. Why the prohibition on indomethacin?
   a. Indomethacin may cause otic damage.
   b. Indomethacin can cause premature ductal closure
   c. Maternal acidosis can result in ion trapping in the fetus.
   d. The patient was misinformed, there is no problem.
   e. Indomethacin can prolong labor.
Answer (B): Premature fetal ductal closure.
Normal fetal circulation requires a patent ductus arteriosus to help divert blood flow to the body and away from the pulmonary circulation. After 34 weeks’ gestation, indomethacin can cause the closure of this necessary conduit.

9. A 37 year old man comes to you with complaints of involuntary jerky movements which were initially a subject of joking around at work, but are getting worse and are worrisome. His higher functions seem to be slipping (he can’t do Sudoku anymore and he used to be pretty good at it). On exam, you notice occasional grimaces and jerky movements. With all labs normal, the most likely diagnosis is?
   a. Huntington’s chorea
   b. Parkinson’s disease
   c. Manic–depression with acting out
   d. Dystonic reaction to toxin at work
   e. Psychosis

Answer (A): Huntington’s chorea.
Decreasing cognitive function and involuntary movements, starting in this age group, are most consistent with Huntington’s chorea, a relentlessly progressive disease resulting in death in 10 or 20 years. Family history is the most important diagnostic clue. Wilson disease, a disorder of copper metabolism, is a less likely diagnosis.

10. A 9 year old boy is brought in for evaluation of a cold. You notice that he is very withdrawn, and reluctant to take off his long sleeve shirt. When you remove the shirt, you see circular burns about the size of a cigarette tip. He has other bruises on his body but he says he’s OK and still won’t look at you. The most appropriate next move is?
   a. Apply ointment to the burns.
   b. Have the child evaluated by psychiatry for depression
   c. Do throat cultures looking for strep
   d. Immediate social work notification with concern for child abuse
   e. Start empiric antibiotics, pending strep cultures.

Answer (D): Social work. The injuries and affect of this patient all point to abuse. Get social work involved, and, under no circumstances let this kid get back home with the parents. Believe it or not, anesthesiologists have at times picked up signs of abuse (taking the clothes off kids in the OR, they’ve noticed the other injuries). Before we are specialists, we’re doctors first, and a doctor has to always have his/her radar up for abuse.
12. Surgery – Winthrop

- Education leader
  - Dr. Stuart Bohrer
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - Bring immunization paperwork on the first day
  - Must work with general surgery PAs, as if they are co-interns. You must know EVERYTHING they have done while you were scrubbed or away at a CODE T
  - Expect to scrub for 1-3 cases per day

- Competency-Based Goals and Objectives.

Goals:
Manage patients pre, intra, and postop. (MK, PC, ICS, P, SBP, PBL)
Function as a team member (SBP, ICS, P, PBL, PC)

Objectives:
Become adept at placing peripheral intravenous lines. (PC, MK, PBL)
Communicate effectively with staff, colleagues, patients, and family members. (ICS, P, SBP)
Write clear and complete notes. (ICS, PBL, P, PC)
Manage pre-op preparation (assure patients are ready for elective surgery) (PC, MK, PBL, SBP, P, ICS)
Assist intraoperatively (sterile technique, working knowledge of case being done) (PC, MK, PBL, ICS)
Assess and treat common postop problems (pain, nausea/vomiting, oliguria) (MK, PC, PBL, ICS)

- Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation
The education leader is responsible for making sure all three are completed.
If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week
Checklists.
IV’s.
Central lines.
Complete notes.
Clear presentations.

Test.

1. A 48 year old tech in the OR at Winthrop pulls you aside and says he notices he’s getting more and more tired and weak. He’s lost weight and has trouble getting up out of a chair. On exam he has proximal muscle weakness. Labs are drawn and are largely normal. Which lab test would most cost-effective to tell if there is a liver or a muscle source of this evident myopathy?
   a. Alkaline phosphatase
   b. Gamma glutamyl transferase
   c. Muscle biopsy
   d. Liver biopsy
   e. Serum transaminase

Answer (B) GGT
Serum transaminase is present in muscle as well as liver, so won’t offer a point of differentiation. GGT is specific to liver so would rule this out as a specific source. The biopsies are expensive and invasive so aren’t as cost effective.

Link to anesthesia: Whenever we face a patient with a potential myopathy, we avoid succinylcholine as you may get a hyperkalemic response. We are also careful with other muscle relaxants as we can get an exaggerated response. We also have to be aware that such a patient may have an accompanying malignancy (for example, lung cancer).

2. A 45 year old patient status post laminectomy complains on the floor that his back is hurting worse and worse and his legs are getting weaker. At this point, you should do what?
   a. Order bleeding studies
   b. Start FFP.
   c. Notify neurosurgery immediately.
   d. Do a septic workup
   e. Order EMG’s.

Answer (C) Neurosurgery notification.
This is an emergency with a capital E, since this patient is showing signs of neurological loss after surgery near the spinal cord. Likely a hematoma is compressing the spinal cord and needs to be drained as fast as humanly possible, or else the neuro loss will be permanent.

Link to anesthesia: We do regional anesthetics (spinals and epidurals) which can cause this very problem – epidural hematoma resulting in neurologic injury – so we have to be aware of patient’s bleeding profile (low platelet count, liver failure, taking meds such as Coumadin or Plavix) before we place such blocks.

3. You are covering the floor and are notified of a 50 year old man, S/P colectomy, whose urine output has dropped to 20 cc/hr. How do you evaluate and treat this low urine output?
   a. Wait for 6 more hours, if it persists, then give fluids.
   b. Give a 1 L fluid challenge.
c. Start renal dose dopamine
d. Give a unit of blood.
e. Rule out post-renal and pre-renal causes of oliguria, then treat the cause.

Answer (E) Rule out post-renal and pre-renal.
Oliguria has three main causes, post-renal (obstruction or kink in the Foley), pre-renal (inadequate volume) and renal (a diagnosis of exclusion once the others are ruled out). So first make sure the Foley’s mechanically OK, then review the I’s and O’s, and only after that, go ahead with the fluid challenge.

Link to anesthesia: This kind of problem is our very bread and butter, it comes up all the time in the OR and the PACU. Same thing as above, here’s where your internship training has an exact link to how you will practice clinical anesthesia.

4. A 40 year old man with long-term steroid use (for asthma), presents with a fever and a reddened, tender area over his left hip. You suspect septic arthritis. How do patients usually position themselves to relieve the pain of a septic hip?
   a. Straight out
   b. Flex and externally rotated
   c. In constant movement, they can’t get comfortable
   d. Flex and internally rotated
   e. Held tightly abducted

Answer (D) Flex and internal
This position puts the least strain on the inflamed area around the hip, so patients hold the hip flexed and externally rotated. Knowing how a patient holds themselves is useful in helping diagnose different conditions. For example, appendicitis patients will often bend up their knees to relieve the pain.

Link to anesthesia: We have to be sensitive to a patient’s needs and pain as we move them over to the OR table. Yanking or twisting a tender area (such as this hip) is just plain wrong, so be careful when positioning a patient. If they are in real pain and any movement is agony, then induce on the stretcher and move them over once anesthesia is established.

5. A 50 year old man is admitted for what looks like appendicitis, but on closer exam, turns out to be acute cystitis accompanied by development of bladder stones. Given the development of renal stones, what is the most likely causative organism for this cystitis?
   a. E coli
   b. Klebsiella
   c. Tularensis
   d. Proteus mirabilis
   e. Chlamydia

Answer (D) P mirabilis
A lot of agents can cause cystitis, the most frequent being E coli. But Proteus mirabilis splits urea and alkalinizes urine, which can precipitate out calcium, resulting in the formation of bladder stones.

Link to anesthesia: During surgery, manipulation of infected areas (such as doing cystoscopy to remove these stones) can result in sudden development of hemodynamic instability as “septic contents” are released into the bloodstream. A sudden pressure drop and rise in heart rate, along with flushing and a rise in temperature, should tip you off to this. This is why you always have to be aware of “what’s happening on the other side of the drapes, so you can be prepared for such bumps in the road.
6. A 49 year old “New Age” enthusiast presents with complaints of easy bruising. She is overall healthy, active and eats a vegetarian diet. In addition, she takes grape seed extract, garlic, ginko biloba, and ginseng. Clotting studies are drawn, and her platelet count, as well as PT and PTT are normal. The next best step in her management is?
   a. Stop taking the herbal supplements.
   b. Order a bleeding time
   c. Do mixing studies to look for an inhibitor.
   d. Do a peripheral smear to look for thalassemia
   e. Do gel electrophoresis to look for Hemoglobin S

   Answer (A): Stop herbals.
   Through a weird coincidence, all the herbals that start with “G” have been found to cause coagulopathies (“G”o figure!) Since her clotting studies all appear to be normal, and hunting for obscure causes will be a waste of time and money, have her get rid of all those herbals.

7. A nursing home patient who is severely demented and fed by gastrostomy tube is admitted with diffuse abdominal pain. Workup shows huge loops of gas filled bowel. The best initial treatment for this condition is?
   a. Immediate exploratory laparotomy.
   b. Placement of an NG tube.
   c. Air contrast enema
   d. IV glucagons
   e. IV metaclopramide

   Answer: (B): NG tube
   Huge loops of gas filled bowel is most consistent with an ileus. NG tube and decompression will alleviate the pain and decompress the bowel. Though the patient may eventually need an ex lap, decompression may take care of things and avoid the operation. This ileus may resolve with such medical treatment.

8. A blood chemistry study of this patient with the loops of bowel will likely show what?
   a. Normal blood chemistry
   b. Alkalosis and hypokalemia
   c. Acidosis and hyperkalemia
   d. Acidosis and hyponatremia
   e. Alkalosis and hyponatremia

   Answer (B): Alkalosis and hypokalemia
   The patient is likely nauseated and vomiting, thus losing volume and H+. Aldosterone levels will climb as the patient attempts to maintain Na+ and volume. This high level of aldosterone will result in potassium wasting, plus the patient will lost potassium into the bowel lumen. End result → alkalosis and hypokalemia.
9. A 5 year old boy is unable to keep up with the other kids on the playground and he says his legs are weak. His blood pressure is a surprisingly high 130/88. His lower extremities are less well muscled than his arms and appear mottled. His CXR will likely show?
   a. Anterior mediastinal mass
   b. Hilar adenopathy
   c. Pneumothorax
   d. Rib notching
   e. Cardiomegaly

Answer (D): Rib notching.
This kid’s history and physical exam are consistent with aortic coarctation. In an attempt to “get around the tight spot”, the intercostal arteries enlarge and result in notching of the ribs. He should also have an echo looking for bicuspid aortic valve, as this is often seen along with coarctation.

10. A 2 year old boy with Tetralogy of Fallot will frequently stop playing and crouch down. What is the reason for this squatting behavior?
   a. Psychological response to the discomfort of hypoxemic episodes.
   b. These are near-syncopal events
   c. Increase pulmonary vascular resistance
   d. Increase systemic vascular resistance
   e. Stretch his leg muscles

Answer (D): Increase systemic vascular resistance.
Kids with Tetralogy of Fallot learn early on that if they crouch down, that increase systemic vascular resistance, making blood flow “preferentially” to the pulmonic vasculature, which relieves their hypoxemia. These Tet spells are an example of applied physiology!
13. Surgery – General Surgery

• Education leader
  o Dr Alison McClarty
  o Dr Gallagher
  o Dr Delemos

• Tips.
  - At minimum, must get vitals, lastest labs and study results, and overnight events prior to pre-rounding with senior resident.
  - Prepare to round twice on a weekend call; once at the start and again at the end of a weekend call.
  - You need to get in about 5:15 to round with the chief at 6:15 and the attending at 7:15.
  - When the chief operates, you are “floor watcher” taking care of all problems on the floor.

• Competency-Based Goals and Objectives.

Goals:
Manage patients pre, intra, and postop. (MK, PC, ICS, P, SBP, PBL)
Function as a team member (SBP, ICS, P, PBL, PC)

Objectives:
Become adept at placing peripheral intravenous lines. (PC, MK, PBL)
Communicate effectively with staff, colleagues, patients, and family members. (ICS, P, SBP)
Write clear and complete notes. (ICS, PBL, P, PC)
Manage pre-op preparation (assure patients are ready for elective surgery) (PC, MK, PBL, SBP, P, ICS)
Assist intraoperatively (sterile technique, working knowledge of case being done) (PC, MK, PBL, ICS)
Assess and treat common postop problems (pain, nausea/vomiting, oliguria) (MK, PC, PBL, ICS)

• Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation
The education leader is responsible for making sure all three are completed.
If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week
• Checklists.
  IV’s.
  Central lines.
  Complete notes.
  Clear presentations.

• Test.

1. A tall, gangly pre-med student is admitted to the chest surgery service with sudden onset of left-sided chest pain and dyspnea. He was studying organic and quips “I didn’t know memorizing Witting reactions could be so dangerous”. CXR in this patient is likely to show what?
   a. Congestive heart failure
   b. Situs inversus
   c. Pneumothorax
   d. Diaphragmatic herniation
   e. Boorhaeve’s syndrome

Answer (C) Pneumothorax
The spontaneous rupture of a lung bleb is seen most often in tall, thin men, particularly in this case, where there was no record of trauma. All the other answers are extremely unlikely or just plain don’t present this way.

Link to anesthesia: We have to be very aware of pneumothoraces on a number of fronts – we can cause them with our central line or neural block techniques. Trauma patients will often have a pneumothorax and may “fly back to the OR” before any studies can be done. And placing a patient on positive pressure ventilation (as we do so often in the OR) can convert a pneumothorax to a tension pneumothorax in a few seconds.

2. Treatment for this stricken pre-med student should consist of what?
   a. Diuretics and digoxin.
   b. Observation with oxygen, nasal cannula, and a repeat CXR in 12 hours.
   c. Chest tube, pain control, and oxygen
   d. Intercostal nerve blocks
   e. Immediate thoracotomy

Answer (C) Chest tube
This patient has popped a bleb and has a symptomatic pneumothorax, so you need a chest tube to get the lung to re-expand. Pain control is necessary as chest tubes hurt like crazy. Supplemental oxygen will help reduce the size of the pneumothorax. You don’t need to operate right away, but later on, this patient may need to have a more definitive cure to these recurring blebs popping.

Link to anesthesia: Such patients will come to us to have pleurodesis done. This kind of intrathoracic lung procedure brings us into the challenging world of lung isolation. With either a double-lumen tube or a bronchial blocker, you ventilate the non-involved lung but do not ventilate
the operated-on lung. Problems that arise are hypoxemia and difficulty in “getting the lung to come down”.

3. An 8 month old boy presents with abdominal pain, “currant jelly” stools, and non-stop crying. On exam you do not feel intestines in the right lower quadrant, and an abdominal film shows a lot of air in the intestines. What is the likely diagnosis?
   a. Intussusception.
   b. Appendicitis
   c. Congenital diaphragmatic hernia
   d. Pyloric stenosis
   e. Sepsis

Answer (A) Intussusception
The abdominal pain, currant-jelly stools (not that anyone eats currants anymore), absence of intestine in the right lower quadrant, and age (usually seen in 8 – 12 month olds) all point to intussusception. A good diagnostic maneuver which often cures the problem is air contrast enema.

Link to anesthesia: When you step into the realm of anesthesia for kids, you have to “re-learn kiddie anatomy and physiology. A few of the high points – kids have a stiff epiglottis, so generally you intubate with a straight, rather than a curved blade. Kids have a high surface/volume ratio, so they can cool off quickly (warm the room). Getting IV’s in dehydrated little kiddies is an art form.

4. A 39 year old woman receives a liver transplant and is admitted to the SICU, where you are rounding on her. The liver transplant team is concerned, since the liver didn’t “look good” when it was placed, so they are concerned that this allograft may fail. What would be an indicator of allograft failure?
   a. Diabetic ketoacidosis.
   b. Non-ketotic hyperosmolar acidosis
   c. Hypercoagulable state
   d. Increased transaminase
   e. Elevated ammonia levels.

Answer (E): Ammonia
When a liver transplant fails, patients become hypoglycemic (the liver can’t perform its gluconeogenesis function), coagulopathic (INR’s rise), and can’t metabolize ammonia. The also develop acid-base disturbances.

Link to anesthesia: When liver failure occurs, we have to think through which drugs we can and cannot give the patient. Drugs which require hepatic metabolism will obviously have a much prolonged half life. Narcotics and sedatives, for example, last a loooooooooooong time when there’s no liver around to metabolize them.

5. A 58 year old man undergoes a prolonged pelvic resection for metastatic tumor. He had received radiation in this area earlier and the dissection proved prolonged and difficult. He came out of surgery with blood-tinged urine and the hope was that this would clear, but the urine continues to be bloody. What is the next best step?
   a. Get an MRI to look for recurrent disease.
   b. Get an intravenous pyelogram
c. Acidify the urine

d. Place a Swan Ganz catheter to assess adequacy of volume replacement.

e. Observe for 24 hours.

Answer (B) Pyelogram

The ongoing hematuria in the setting of a prolonged and difficult dissection raises the possibility of ureteral injury. The best way of assessing the ureters is an intravenous pyelogram, and this is something that must be done right away if repair of the ureter is to have a good chance of success.

Link to anesthesia: During lots of cases (eg pelvic exenteration, hysterectomy) we have to be aware that the ureters are at risk, so we should notify the surgeons right away if we see hematuria. You can’t just rely on urine output, because if they cut one ureter, you can still see urine being produced and “coming down the pike” from the other kidney, and it’s not so simple as “wow, urine output is down by ½, they must have cut the other ureter!” Too bad, that would make life so much simpler.

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. A 30 year old man with IVDA and advanced AIDS presents with fever, stiff neck, photophobia, nausea and vomiting. His eye exam shows a blurred optic disc and vasculature which appears to be bulging forward. What is his likely diagnosis?

   a. Epidural hematoma
   b. Retinal detachment
   c. Cryptococcal meningitis
   d. Tension headache
   e. Pneumonia

Answer (C): Cryptococcal meningitis

The findings on exam are consistent with papilledema, which indicates increased intracranial pressure from any of a number of causes. His history of AIDS, neck signs, and quick course are all consistent with a cryptococcal infection in his CSF.

7. The best first steps in his management are?

   a. Start anti-fungal therapy
   b. Do a spinal tap
   c. Place a lumbar drain
   d. First do a CT, then, if no mass, do a spinal tap
   e. Steroid IV

Answer (D): CT then tap

The papilledema is consistent with increased ICP, so you first have to rule out a mass lesion. If you just go ahead and tap and there IS a mass lesion, the patient will herniate and die, which is frowned on. Once you have ruled out a mass lesion, then by all means do the tap because you need this to make the diagnosis.

8. An African-American college student developed the flu and a few days later noticed a darkening of his eyes, shortness of breath and dark urine. On exam, he appears short of breath
and tachycardic. His labs are remarkable for a Hct of 20 and Heinz bodies visible in a peripheral smear. What is his likely diagnosis?

a. Sickle cell disease
b. Thalassemia
c. Glucose-6-phosphate dehydrogenase deficiency
d. Diabetes
e. Substance abuse

Answer (C): G6PD def’y.
This story is consistent with severe hemolysis (low Hct, jaundice, scleral icterus, dark urine) with broken down blood cells accounting for all the physical findings. Under the stress of the flu, this patient’s condition does not allow him to make enough glutathione to detoxify oxidants. Certain drugs can also ‘unmask” G6PD def’y.

9. What lab data would help confirm your suspicion of this man’s condition?

a. Elevated conjugated bilirubin
b. Elevated unconjugated bilirubin.
c. Decreased overall bilirubin.
d. Decreased conjugated bilirubin
e. Decreased unconjugated bilirubin.

Answer (B): Elevated unconjugated
Unconjugated bilirubin comes from breakdown of red blood cells. Conjugation of the bilirubin occurs once the bilirubin travels to the liver, but in this case, that doesn’t happen. The red cells pop (how inelegant a way to phrase it) and their bilirubin goes right into the blood stream and shows up on the test.

10. A 19 year old, agitated man is admitted to the ER because of chest pain. His blood pressure is 240/125, HR is 130, and his tox screen lights up for cocaine. The ideal drug for treating his immediate condition would be?

a. Esmolol
b. Labetalol
c. Inderal
d. Valium
e. Propofol

Answer (B): Labetalol
The cocaine is producing profound alpha and beta stimulation, so both these need to be blocked to drop the blood pressure and heart rate, thus reducing strain on the heart. Valium and propofol are sedatives, but what is needed in the setting of chest pain is control of those vital signs. Giving a pure beta blocker will result in unopposed alpha stimulation which can worsen the blood pressure and vasoconstriction.
14. Surgery – Surgical Oncology

- Education leader.
  - Dr Phillip Bao
  - Dr Gallagher
  - Dr Delemos

- Tips.

- Competency-Based Goals and Objectives.

Goals:
Manage patients pre, intra, and postop. (MK, PC, ICS, P, SBP, PBL)
Function as a team member (SBP, ICS, P, PBL, PC)
Integrate cancer care

Objectives:
Become adept at placing peripheral intravenous lines. (PC, MK, PBL)
Communicate effectively with staff, colleagues, patients, and family members. (ICS, P, SBP)
Write clear and complete notes. (ICS, PBL, P, PC)
Manage pre-op preparation (assure patients are ready for elective surgery) (PC, MK, PBL, SBP, P, ICS)
Assist intraoperatively (sterile technique, working knowledge of case being done) (PC, MK, PBL, ICS)
Assess and treat common postop problems (pain, nausea/vomiting, oliguria) (MK, PC, PBL)
Understand implications of cancer on periop care (mediastinal mass, metastatic disease, chemotherapy) (MK, PC, PBL, SBP)

- Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation
The education leader is responsible for making sure all three are completed. If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week

- Checklists.
1. An 80 year-old man with metastatic prostate CA is admitted to the surgical oncology service because he has developed severe lower thoracic back pain along with “shooting sensations” going into his buttocks and legs. He is on a gonadotropin releasing-hormone in an attempt to reduce the size of his metastases. What is the next best step?
   a. Schedule hospice care.
   b. Start high dose oral narcotic therapy.
   c. Schedule for implantation of an intrathecal narcotic pump.
   d. Obtain a STAT MRI of the thoracic spine.
   e. Start immediate bed rest.

Answer (D) STAT MRI.
This patient’s tumor is showing signs of spinal cord compression, so you need to see if this is indeed the case (after starting this hormone therapy, tumors will sometimes undergo a “tumor flare” and increase in size before shrinking). He may need STAT decompression to prevent permanent loss.

Link to anesthesia: In the OR, we will see patients with metastatic disease. If this disease is in the spine, it’s a good idea to “stay away” from placing a spinal or epidural for concern you could go “right into a met.” Special care with positioning is also required as bony mets are painful and can lead to pathologic fractures.

2. What is the best indicator of how severe the neurologic loss will be from this tumor metastasis?
   a. Patient body habitus.
   b. How impaired he is at the time of decompression.
   c. Overall body tumor load.
   d. Age
   e. Cardiac condition (number of METS they are capable of doing)

Answer (B) Degree of impairment
If the patient is ambulatory and has good function when the diagnosis is made and the decompression is done, they will likely keep good function. But neurons die fast, so if the patient is paraplegic by the time the decompression occurs, they are likely to stay paraplegic. So STAT is the word.

Link to anesthesia: This has been touched on but bears repeating. If after placement of a regional block, it appears that the patient is suffering from an epidural hematoma or any kind of bleed that is compressing the spinal cord, you must move fast and must act now.

3. A 54 year old woman with metastatic breast cancer comes back to your surgical oncology service with complaints of nausea, weakness, confusion and “sleeping all the time” per her family. Her laboratory data will likely show?
   a. Hyperkalemia
   b. Hypercalcemia
   c. Metabolic alkalosis
d. Respiratory alkalosis  
e. Hypoglycemia

Answer (B). Hypercalcemia  
Patients with metastatic cancer will sometimes develop a paraneoplastic syndrome due to a parathyroid hormone-related protein. This results in the body “thinking it’s seeing parathyroid hormone” and calcium is mobilized. Hence hypercalcemia occurs and patients get nausea, weak, and hypersomnolent as well as confused.

Link to anesthesia: We need to be prepared for any and every metabolic aberration, since emergency patients come to us all the time with electrolyte disturbances. In this case, a hypercalcemic patient coming emergently to the OR would need initial treatment of volume resuscitation with normal saline to dilute the calcium level and rehydrate the patient.

4. A patient presents with painless lower GI bleeding and undergoes a technetium scan. A lesion is found 2 feet (intestinal feet that is) from the ileocecal valve. This most likely represents what lesion and what is the treatment of choice?
   a. Pheochromocytoma, excision.  
b. Benign polyp, observation  
c. Small intestinal ulcer, antacid therapy  
d. Meckel’s diverticulum, surgical resection  
e. Metastatic cancer, radiation therapy

Answer (D): Meckel’s  
Meckel’s diverticulum is usually found within 2 feet of the ileocecal valve, is a remnant of the embryonic vitelline duct, is found on the anti-mesenteric border of the gut, and can either present as painless lower GI bleeding or else get inflamed. In its inflamed state, it can mimic appendicitis. This is treated with resection.

Link to anesthesia: A question that arises frequently is, “Can this case be done with a spinal?” In a case like this, where the intestines are likely to be pulled and manipulated, patients get pretty uncomfortable from all the mesenteric traction, so we lean towards general anesthesia in such a case.

5. A 32 year old woman has a breast lesion under her nipple. To determine if she has metastatic disease, a ______ node biopsy is planned, using a technetium-labeled sulfur colloid.
   a. Metastatic  
b. Malignant  
c. Sentinel  
d. Lymphatic  
e. Radioimmunoassay

Answer (C) Sentinel  
A sentinel node biopsy uses labeling to see what is “the most likely node involved”, so you can see if the patient has metastatic disease. If this sentinel node is negative, then the lesion is assumed to be isolated, and you can spare the patient a complete axillary node dissection.

Link to anesthesia: When we provide general anesthesia to a patient undergoing a lymph node dissection, we have to steer clear of long acting neuromuscular blockers, because the surgeons need to “see” the long thoracic nerve as they dissect. As they touch this nerve (which is hard to see in the axilla), they’ll see a muscle twitch, and work around the nerve. There are other cases where we have avoid neuromuscular
blocking agents as well (for example, a parotidectomy, where the surgeon needs to work around the facial nerve).

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. A racquet ball player complains of right shoulder pain. With crossed arm adduction and applied resistance, the pain gets worse. He doesn’t get pain with flexion of his arm or when you palpate his deltoid. What is the most likely diagnosis?
   a. Rotator cuff tear.
   b. Biceps tendon disruption.
   c. Acromioclavicular joint inflammation
   d. Subacromial bursitis
   e. Rheumatoid arthritis

Answer (C): Acromioclavicular
If pain is elicited with deltoid palpation, that is consistent with subacromial bursitis. Pain with flexion would point to a biceps problem. Crossed arm adduction and resistance puts pressure on the acromioclavicular joint.

7. A newborn boy is evaluated at 3 days of age for yellowing of the skin and is found to have a bilirubin of 9 mg/dL. Blood smear shows no evidence of hemolysis. The most likely diagnosis is?
   a. Physiologic jaundice
   b. Liver failure
   c. Hereditary spherocytosis
   d. Sickle cell disease
   e. Gilbert syndrome

Answer (A): Physiologic jaundice.
Newborns often develop jaundice, and the first step is to see if the bilirubin is conjugated or unconjugated. Physiologic jaundice has primarily unconjugated bilirubin. Gilbert syndrome shows a mild elevation of unconjugated bilirubin due to decreased hepatic bilirubin uptake. This level of bilirubin, with no evidence of hemolysis, is consistent with physiologic jaundice.

8. If this condition progresses to kernicterus, the best treatment is?
   a. Increasing the amount of breast feeding
   b. Dialysis
   c. Intubation
   d. Phototherapy and Phenobarbital
   e. TPN

Answer (D): The treatment for kernicterus is phototherapy and Phenobarbital. The phototherapy can be as simple as putting the child in sunlight, though in the hospital they will often place the babies under “the French fry lights”.

9. An obese woman with Type II diabetes becomes pregnant and is seen in prenatal clinic. Developmental problems in babies of diabetic mothers are most often what?
   a. ADHD
   b. Neural tube and cardiac defects
c. Turner syndrome
d. Osteogenic anomalies
e. Tracheoesophageal fistulas.

Answer (B): Cardiac and neural tube.
Care of the pregnant diabetic patient is extremely difficult, as your aim is to maintain almost unachievably tight glucose control (fasting 60–90, postprandial 120, that’s a tough row to hoe!) Neural tube and congenital problems can arise. In addition, babies can have macrosomia, making delivery difficult.

10. Which prenatal test would indicate a high possibility of a neural tube defect (spina bifida, anencephaly)?
   b. Postprandial glucose  
   c. HCG
   d. Serum albumin
   e. INR at mid second trimester

Answer (A): Maternal serum alpha-fetoprotein
This test must be carefully interpreted, taking into account race, maternal age, and diabetes. A low serum AFP can indicate a missed abortion, hydatiform mole, or fetal trisomy. Ultrasonography can be used to further cement the diagnosis of a neural tube defect.
15. **Emergency Room**

- Education leader
  - Dr Scott Johnson (he’s the Residency Director for ER, great guy, does a lot of teaching in the Simulation Center, make a point of getting to his sessions, they’re great)
  - Dr Gallagher
  - Dr Delemos

- Tips.
  - Review how to do a pelvic exam as you will be doing a lot of these in the ER.

- Competency-Based Goals and Objectives.

**Goals**

- Triage ( PC, MK, PBL, ICS, P, SBP )
- Manage respiratory and hemodynamic crises ( PC, MK, PBL, ICS, P )
- Recognize need for codes ( PC, MK, PBL, SBP, ICS )

**Objectives**

- Recognize and start treatment for asthma. ( MK, PC, PBL, ICS )
- Recognize and start treatment for myocardial ischemia ( MK, PC, PBL, ICS )
- Obtain and keep current on ACLS certification ( P, MK, PC, PBL, ICS )
- Place peripheral IV’s. ( MK, PC, PBL )
- Interpret imagining studies and lab data pertinent to ER setting. ( MK, ICS, PBL )
- Communicate well with colleagues, staff, patients, and family. ( ICS, P, PBL )

- Evaluations.

  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.
  The evaluations have to be done by:
  - Pre-rotation – End of 1<sup>st</sup> week
  - Mid-rotation – End of 2<sup>nd</sup> week
  - End-rotation – End of 4<sup>th</sup> week

- Checklist.
  - Place peripheral IV’s.
  - Evaluate asthmatic, myocardial ischemia, and unstable trauma patient
  - Assist in codes
1. A 40 year old woman who has had multiple sexual partners presents to the ER with complaints of vaginal discharge. She has had no regular medical care and has had no PAP smears. A Pap smear is sent from the ER and (hoping she’s not lost to followup) it’s found she has cervical cancer. The infective agent most likely for development of her cervical cancer is what?
   a. Herpes simplex
   b. Human papilloma virus
   c. Treponema pallidum
   d. Gonococcus
   e. Hepatitis C

Answer (B) Human papilloma virus
This patient is at risk for a number of sexually transmitted diseases, but the one that is most closely linked to development of cervical cancer is human papilloma virus (the specific sub-types are 16, 18, 31, 45 and 51-53, in case you’re interested).

Link to anesthesia: This link is a bit of a stretch, but bear with. Just as the ER visit generated “primary care” which this patient had been lacking, we in anesthesia may, at times, come across a “primary care issue” which we (as doctors) should make sure are taken care of. For example, during a routine intubation we note a lesion in the mouth or the pharynx that could be a malignancy. We owe it to the patient to make sure this is noted and followed up.

2. A 48 year old woman comes to the ER with complaints of headache, visual disturbances over the last few months. But she came into the ER because she now noticed milky discharge from her breast and she is concerned this is breast cancer. This is most likely what?
   a. Breast cancer
   b. Polycystic kidney disease with neoplastic syndrome
   c. Prolactinoma
   d. An irregular presentation for onset of menopause
   e. Mastitis

Answer (C) Prolactinoma
This constellation of syndromes points to a pituitary tumor. These tumors press on the optic chiasm (headache and visual disturbances) and cause release of different substances, including prolactin (milky discharge).

Link to anesthesia: Headache, visual disturbances, and other central nervous system problems should always tip us off to the presence of increased intracranial pressure. If you see these symptoms in a patient with a tumor (as here) or a trauma patient, you have to tailor your anesthetic accordingly (this discussion could go on for a hundred pages), suffice to say, we have to be very adept at picking up increased ICP.

3. A 56 year old Afro-american man comes to the ER for treatment of shortness of breath and increasing fatigue so bad that today he could hardly drag himself out of bed. On exam he is pale, tachycardic, and looks chronically ill. Exam is remarkable for black, tarry stool. The most likely cause of this man’s problems is?
   a. Hereditary spherocytosis.
   b. Thallasemia
   c. Sickle cell disease
d. CHF  
e. GI tumor.

Answer (E) GI tumor.  
This man’s shortness of breath and fatigue is likely due to severe anemia from blood loss. The black tarry stool is consistent with bleeding from an undiscovered tumor (likely colonic). The other causes can occur, but if you go with “common things happen commonly”, the odds are on internal bleeding.

Link to anesthesia: Pre-op testing in anesthesia used to be “shotgun”, with everyone getting every test known to man. Now we are much more selective about what tests we get, tailoring the test to the individual patient and their disease. But by God if they did get a test drawn, look at the result! You’d rather know your patient is anemic going into the case (and be ready with blood) than to be surprised later on to find out!

4. An agricultural worker comes into the ER after exposure to a huge amount of insecticide. He has pinpoint pupils, a heart rate in the 30’s, profuse secretions, diarrhea, and is comatose. After securing his airway, he is best treated with which medication?  
a. Diazepam  
b. Narcan  
c. Atropine  
d. Dilantin  
e. Insulin

Answer (C) Atropine  
This is a classic presentation of a cholinergic crisis. The patient has been exposed to a “thunderbolt” of cholinergic drugs, resulting in massive stimulation of the parasympathetic nervous system. Atropine, a potent anti-cholinergic with ability to cross the blood-brain barrier, is the treatment here.

Link to anesthesia: This is the kind of agent that terrorists could use in a biological weapon. Since we are tagged as “first responders” to disasters, we may have to manage such patients. Intubation will be difficult because of profuse secretions and intense bronchoconstriction.

5. People in the ER are starting to suffer from nausea, vomiting, and exacerbations of asthma as they are working around this patient. What is happening?  
a. Psychosomatic disorder  
b. Folie a deux  
c. Dirty needle sticks can explain this  
d. Food poisoning from the cafeteria  
e. Volatilization of the insecticide with removal of his clothes.

Answer (E) Volatilization  
As this patient’s clothes are removed, the powdered insecticide is being released into the air. Nearby health care workers are breathing this noxious brew in and getting cholinergic poisoning themselves.

Link to anesthesia: Especially in the case of a biological weapon, the danger of “secondary suffering” is very real, so you’d have to wear special protective clothing (which is a pain in the ass, I’ve done a drill with it) to keep from getting sick yourself.

SUBSEQUENT QUESTIONS WILL NOT HAVE LINKS TO ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.
6. A 16 year old female is brought into the clinic because she has not yet menstruated, appears short compared to her peers, has a weblike neck and is “slow”. On exam she has no secondary sexual characteristics and has cubitus valgus. A karyotype is likely to show what?
   a. XXX
   b. Trisomy 21
   c. XO
   d. XXY
   e. XYY

   Answer (C): XO
   All the physical characteristics, along with the history of amenorrhea, indicate Turner syndrome, which has an XO karyotype.

7. A 67 year old female is at high risk for osteoporosis, she is of northern European ancestry, had early menopause, no children, and is thin. What lifestyle change will benefit her situation?
   a. Take up smoking
   b. Start drinking three glasses of red wine per night.
   c. Start a rigorous program of swimming.
   d. Move to a desert environment.
   e. Take up exercise that includes weight bearing.

   Answer (E): Weight bearing exercise.
   She cannot do much about her other risk factors, but she can take up weight bearing exercise. Swimming, though good for you, makes you “weightless” in the water, so doesn’t help improve the osteoporosis situation. Smoking and drinking hurt, and the desert thing is irrelevant.

8. A healthy patient comes in to get a routine exam. He’s 53 years old and just feels it’s time he gets checked out. What is the single best screening exam, on a cost-effective basis, to perform on this patient?
   a. CXR
   b. Head CT
   c. Whole body skin check
   d. Blood pressure
   e. CBC with differential

   Answer (D): Blood pressure.
   As a screening device, blood pressure pays off the most, because catching high blood pressure and treating it effectively can reduce the incidence of heart disease. From a cost benefit ratio, this beats all the other tests listed by a long shot.

9. A 70 year old woman has lost several friends to cancer in recent years and wants to be checked out “from head to toe” because she has seen enough suffering to last a lifetime. As you discuss her overall health, she asks “What’s most likely to get me, doc?”
   a. Ovarian cancer
   b. Pancreatic cancer
   c. Lung cancer
   d. Cervical cancer
   e. Cardiovascular disease
Answer (E): Cardiovascular disease.

As frightening as malignancies are, the leading cause of death of women 65 and older is still heart disease. So the best method of “preserving life” is checking on and correcting cardiac risk factors, so check her blood pressure and lipid profile. Also, recommend all “heart healthy” lifestyle changes (stop smoking, avoid fatty foods, exercise).

10. At your outpatient clinic, you do a pre-football season exam on a 16 year old boy. He is 73 inches tall and has an arm span of 77 inches. He has a high, arched palate and pectus excavatum. He can bend his fingers far back. (Kids love that on the team). This patient likely has?
   a. Marfan’s syndrome
   b. Klinefelter syndrome
   c. Jakob-Kreutzfeld disease
   d. Gigantism
   e. A pituitary lactinoma.

Answer (A): Marfan’s

The height, pectus deformity, hyperflexibility, and arched palate all go along with Marfan’s. He may need consult for lens dislocation and an echo to rule out a possible dilated aortic arch.
16. Radiology

- Education leader.
  o Dr William Moore
  o Dr Gallagher
  o Dr Delemos

- Tips.
  - Find chest x-ray workstation, as you see the most images per session
  - Look to shadow Dr. W. Moore; expert on chest films and teaches

- Competency-Based Goals and Objectives

Goal 1: Delineate the best method for ordering a meaningful image and retrieving this image. (MK, PC, ICS, PBL, SBP, P)

Objectives:
- Delineate what exactly you are looking for in an image. (MK, PBL)
- Provide useful information to the radiology team. (ICS, SBP, MK, P, PBL)
- Acquire images from PACS (PBL, ICS, PC)

Goal 2: Interpret images of most utility to an anesthesiologist (MK, PC, PBL, ICS)

Objectives:
- Interpret chest X-rays – line and tube placement, pneumothorax, CHF. (MK, PC, PBL, ICS)
- Interpret CT scans – intracerebral masses and bleeding (MK, PC, PBL, ICS)
- Interpret ultrasound images of peripheral structures such as nerves, central vessels. (MK, PC, PBL, ICS)

- Evaluations.

  New Innovations has 3 areas to be evaluated:
  - Pre-rotation
  - Mid-rotation
  - End-rotation
  The education leader is responsible for making sure all three are completed.
  If they are not completed, then Dr Gallagher will do them.
  The evaluations have to be done by:
  - Pre-rotation – End of 1st week
  - Mid-rotation – End of 2nd week
  - End-rotation – End of 4th week

- Checklist.
  Interpret and recognize pneumothorax
Interpret and recognize correct/incorrect endotracheal tube placement.
Interpret and recognize correct/incorrect line (NG, central line, SGC) placement
Interpret CT’s of intracranial pathology

• Test.

1. A 17 year old high school student is thrown off his four wheel all-terrain vehicle as he’s riding in the Pine Barrens. He is admitted with a C-collar and is obviously under the influence of alcohol. A C-spine study is ordered. How will his spine be “cleared”?
   a. Normal bony alignment.
   b. No vertebral body or articular fractures
   c. Absent of ligamentous injury as noted by increased radiodensity
   d. He cannot be cleared until he can give a lucid neuro exam.
   e. Normal AP and lateral C-spine

Answer (D): Can’t be cleared.
A C-spine is only cleared if the radiologic exams are normal and the neurologic exam (with a cooperative and lucid patient) is also normal. Even if everything “appears normal” on exam, you still don’t know that the exam is normal, because a ligamentous injury may have occurred.

Link to anesthesia: We are often called to intubate the patient who has a cervical spine injury or who might have a cervical spine injury. This is always stressful and tricky because, to get a “good view”, you are tempted to extend the patient’s neck, which can worsen the neurologic injury. The “single best way” to intubate the cervically injured/maybe injured patient is a subject of ongoing debate and discussion. Obviously, that means there just plain is NOT one single best way!

2. You had a tough time getting a right subclavian line in a patient. You were changing lines in the ICU and had to work at this for a long time before you got it. You order a chest X-ray. What would be consistent with a pneumothorax?
   a. Vascular markings going all the way out in each lung.
   b. Cardiomegaly.
   c. A dark area with no vascular markings.
   d. Tracheal shift
   e. C and D

Answer (E) No vascular markings and tracheal shift.
Aha! Thought you had it at C, didn’t you? Have to read through all the answers, partner, since they can always do the “multiple multiple” trick on you. If you drop the lung, you get a dark area on CXR with no vascular markings. This can progress to tension pneumothorax with the trachea shifting.

Link to anesthesia: We do a lot of central lines and (I blush) we do drop some lungs when we do it. You’ll need to bring up and review the CXR’s on your patients who get central lines to make sure you didn’t drop the lung. Subclavians are more likely than internal jugular lines to result in a pneumothorax.

3. This patient develops a pneumothorax. How would you treat a tension pneumothorax resulting in instability.
   a. Get a chest surgery consult to place a chest tube.
   b. Give 100% oxygen as this should make the PTX resorb quickly.
   c. Place a chest tube yourself.
d. Decompress with a 14 g needle in the mid-axillary line
e. Decompress with a 14 g needle in the mid-clavicular line 2nd intercostals space.

Answer (E) Mid-clavicular line, 2nd interspace
A tension pneumothorax that is progressing to instability can lead to cardiac arrest in seconds, so you yourself have to decompress this immediately. A chest tube takes too long (especially if chest surgery is far away or you are unfamiliar with placing one). A 14 g in the mid-clavicular line, 2nd intercostal space will decompress and buy you time for the more definitive chest tube later.

Link to anesthesia: Anytime chest surgery, lines, or injury occurs, you have to keep your antenna up for possible pneumothorax. And yes, you may have to decompress this yourself (I did once myself). For example, the surgeons hook up a chest tube after a lung resection but the chest tube kinks, comes out, or malfunctions, and all of a sudden, tension pneumothorax! You have to be ready to be the hero here.

4. You are interpreting an imaging study of the esophagus in a patient with progressive dysphagia and hearburn. He has tried over the counter antacids and herbal therapy but to no avail. A diagnosis of achalasia is high on the differential. What will you look for on the esophagogram?
   a. Varices
   b. Ulcer
   c. Bird’s beak
   d. Intussusception
   e. Diverticulum

Answer (C) Bird’s beak.
Achalasia occurs when the lower esophageal sphincter does not relax and the upper esophagus has decreased peristalsis. The classic barium swallow reveals a “bird’s beak” sign.

Link to anesthesia: Treatment for this disease is esophagomyotomy. In intubating this patient, we have a real concern for aspiration, as the motility of the upper GI tract is so drastically altered. What’s the best way to make sure they don’t aspirate? Lots of debate on this, as no medical therapy has been shown to make a difference, and even our much-vaunted “Sellick’s maneuver” may not prevent aspiration.

5. A 30-something “John Doe” is brought in after a head injury. The plan is to perform a head CT, but an ambitious intern says “Let me do a spinal tap on him first”. Is this a good idea, and why/why not?
   a. Good/gives you opening pressures
   b. Bad/may cause herniation
   c. Good/allows you to rule out infectious causes
   d. Bad/not cost effective
   e. Good/allows you to introduce contrast directly into the CSF

Answer (B) Bad/herniation
Bad idea to suddenly open up a hole in the CSF when there may be high pressure “pushing down from above”. This “violation of the CSF” may result in the brain pushing downward and herniating through the foramen magnum, resulting in death. We try to avoid that!

Link to anesthesia: At times, we may have the option of doing a spinal anesthetic for a case (lower extremity, lower abdominal), but we always have to keep in mind “is there a contraindication to placement of this spinal?” Infection at the site, coagulopathy, or increased intracranial pressure are examples of reasons to avoid a spinal.
6. A 45 year old obese male suffers a pulmonary embolus after a prolonged flight. The purpose of heparin therapy in his treatment is?
   a. To dissolve the clot.
   b. To improve rheology of the blood.
   c. To counteract vitamin K.
   d. To prevent further clot formation
   e. To improve V/Q mismatch in the lungs.

   Answer (D): Prevent further clot formation.
   Heparin does not magically “dissolve” the pulmonary embolus. The body’s own mechanisms will do that over time. Heparin prevents further clot formation, preventing the clot(s) from growing larger. Only in rare circumstances is a surgical excision of a pulmonary embolus even attempted.

7. After stabilization, this patient is to go home. At this point, the therapy to prevent recurrence of the pulmonary embolus is?
   a. Continue heparin, but by subq injection.
   b. Coumadin
   c. High dose aspirin
   d. Rheopro at monthly injections
   e. Alteration in diet

   Answer (B): Coumadin
   Coumadin therapy “takes over” once you stop heparin infusions. In cases where the patient cannot take po (periop/prolonged nausea) then you may have to go back to heparin infusion.

8. This patient presents with easy bruising and bleeding when he brushes his teeth. What is the most important lab to draw at this time?
   a. INR
   b. PTT
   c. Bleeding time
   d. CXR
   e. Arterial duplex of the legs

   Answer (A): INR
   The coumadin affects those parts of the coagulation cascade measure by the PT, so that is the best test. Most likely the INR is out of the therapeutic range and too high. Treatment for this relative overdose of coumadin is vitamin K.

9. A 62 year old woman is concerned that she seems to “creak” every morning when she wakes up, and she’s seen all these commercials about osteoporosis, so she came in to have her “bones” worked up. Her exam is normal and she has no physical complaints or findings. Her lab data shows an elevated serum calcium, decreased serum phosphate, and increased calcium in the urine. Her renal function is normal. Her most likely diagnosis is?
   a. Osteoporosis
   b. Metastatic cancer
   c. Amyloidosis
d. Primary hyperparathyroidism

e. Hashimoto’s thyroiditis

Answer (D): Primary hyperparathyroidism
Primary hyperparathyroidism is reflected in the body “mobilizing more calcium” as reflected by the elevated serum calcium. A lower serum phosphate accompanies this. Also, the body “spills” more calcium in primary hyperparathyroidism. The lack of accompanying symptoms or findings rules out the other conditions.

10. An 80 year old man with hypertension, hypercholesterolemia, obesity, “diet controlled” (more like “diet ignored”) diabetes, and a recent cataract excision, tells you that he feels like a “curtain” is being pulled across his eye. He sees floaters and “flashes, like lightning or something.” His most likely condition is?
   a. Retinal detachment
   b. Optic nerve occlusion
   c. Diabetic retinopathy
   d. Macular degeneration
   e. Herpetic retinitis

Answer (A): Retinal detachment.
The patient’s advanced age, history of hypertension and diabetes, and the recent eye surgery, all place him at risk for developing a retinal detachment. The symptoms of floaters, lightning, and (nearly pathognomonic) the curtain being pulled across his eye all say “retinal detachment”. Immediate retinal specialty consultation is needed so get on the phone!
17. Anesthesia – Pain

- Education leader.
  - Dr Page
  - Dr Delemos
  - Dr Gallagher

- Tips.
  - Follow NPs on the wards at start of rotation to understand Pain Consult work-up and work flow.
  - The first two weeks of the rotation will be at the chronic pain center. Resident is expected to help the acute pain team place blocks and use the ultrasound in the morning from 6:45 to 8am and then head into clinic at 8am. The second two weeks of the rotation the resident reports to the acute pain service at 6:45am.
  - There is resident clinic every Monday and Thursday afternoon starting at 1pm which you will report to throughout your four week rotation on the pain service.
  - Acute Pain service meets in the pre-surgical area next to the OR on level 4 of the hospital.
  - Chronic Pain Center is located in the Cancer Center on campus next to the Ambulatory Surgery Center.
  - The resident pain clinic is located at Technology Park, more information will be given to you when you start at chronic pain. Bring your prescription pads with you.

- Competency-Based Goals and Objectives.

**Goal 1:**
Function on Pain Team (SBP, P, MK, ICS, PBL, PC)

**Objectives**
Communicate with team, floor, and PACU staff. (ICS, PBL, SBP, P)
Understand set-up, risks of PCA (MK, PC, SB, PBL)

**Goal 2:**
Place blocks (MK, PC, PBL)

**Objectives**
Understand how ultrasound machine generates images (MK)
Use ultrasound to place blocks (MK, PC, PBL)
Understand risks/treatment of local anesthetic toxicity. (MK, PC, PBL)

Evaluations.

New Innovations has 3 areas to be evaluated:
- Pre-rotation
- Mid-rotation
- End-rotation
The education leader is responsible for making sure all three are completed. If they are not completed, then Dr Gallagher will do them.
The evaluations have to be done by:
- Pre-rotation – End of 1st week
- Mid-rotation – End of 2nd week
- End-rotation – End of 4th week

- Checklist.
  - Place peripheral IV’s.
  - Mask ventilate
  - Intubate
  - Chart
  - Learn machine checkout

- Test.

1. You are doing a nerve block under ultrasound guidance. As you are injecting, what would tell you that the local anesthetic is going in the right place?
   a. No local anesthetic appearing in the image.
   b. A “halo” of dark around the targeted nerve.
   c. Injection into the nerve itself.
   d. Local anesthetic on the opposite side of a septa.
   e. Venous stasis appearing in nearby vessels.

   Answer (B) Halo
   The virtue of ultrasound is it lets you know you’re delivering “on target” instead of “hoping you’re there”. When a halo of dark appears around the targeted nerve, you know the local anesthetic is going where it’s supposed to.

2. While injecting local anesthetic into a 29 year woman, she complains of hearing ringing in her ears and she has a funny, metallic taste in her mouth. These are signs of what?
   a. Nervousness, you should reassure her.
   b. This is a normal reaction to injection of local anesthetics.
   c. Intraneural injection.
   d. Intravascular injection.
   e. Intramuscular injection.

   Answer (D) Intravascular
   When local anesthetics go intravascular, the first sign of toxicity is central nervous, with “funny feelings”, ringing in the ears, odd taste in the mouth. If sufficient local anesthetic is injected, this can progress to cardiovascular collapse.

3. The best treatment for a patient who has suffered a large intravascular injection of bupivicaine consists of resuscitative care (ACLS) plus infusion of what substance?
   a. Intraplips
   b. Propofol
   c. Pentathol
   d. Mannitol
e. Narcan

Answer (A) Intralipids
Lipid soluble local anesthetics such as bupivicaine have a notoriously bad track record when they are
given intravascularly. Its “fast in, slow out” binding to cardiac tissue causes a prolonged cardiac collapse.
Fortunately, infusion of intralipids has successfully contributed to resuscitation of such patients. It’s
conjectured that the lipids “bind up” the local anesthetic, though no one is exactly sure how it works. But
it does work!

4. A patient is referred to the pain clinic for treatment of severe abdominal pain associated with his
pancreatic cancer. What is the best block to perform for this patient?
   a. Lumbar sympathetic
   b. Stellate ganglion
   c. Solar plexus
   d. Celiac plexus
   e. Ilioinguinal block

Answer (D): Celiac
I love throwing in the “solar plexus” one, since that’s what we were always hitting as a kid and getting the
“wind knocked out of us”. What a shock in Med School to dissect your cadaver and find, GASP, there is
no such thing as a solar plexus. But we do have a celiac plexus, and blocking this can greatly improve the
suffering of pancreatic CA patients.

5. You place a spinal anesthetic in a patient for an inguinal hernia repair using bupivicaine. 20 minutes
later the patient can still feel and move his legs, doesn’t feel anything “warm” and has no level. At
this point, you should?
   a. Wait and re-evaluate in 20 more minutes
   b. Cancel the case
   c. Supplement with local
   d. Place the spinal again
   e. Place an epidural

Answer (D) Place spinal again.
Well guess what, when there appears to be no block whatsoever, there IS no block whatsoever. Your first
block went subcutaneous or into an alternate universe or some damn thing, but it sure didn’t go
intrathecal. Do yourself (and the patient!) a favor and place the spinal again.

SUBSEQUENT QUESTIONS ARE NOT ABOUT ANESTHESIA AND WILL BE “SCATTERED
ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. A 40 year old woman saw you a week ago about an upper respiratory infection. Now she is back
complaining of malaise, a sore throat, and “it especially hurts when I swallow”. Her exam reveals a
thyroid gland that is tender to palpation, and the patient winces when she swallows. The most likely
diagnosis is?
   a. Thyroiditis, subacute
   b. Thyroid cancer
   c. Multiple endocrine neoplasia
   d. Grave’s disease
   e. Goiter
Answer (A): Subacute thyroiditis.
Acute inflammation of the thyroid gland can follow an upper respiratory infection. The cause is thought to be viral. Pain can be severe and is worse with swallowing. At times the patient may present symptoms of hyperthyroidism, as the inflamed gland releases more thyroid hormone.

7. The best treatment for this woman’s thyroid condition is?
   a. Radioactive iodine
   b. Intravenous Lugol’s solution
   c. Aspirin and reassurance
   d. Alpha and beta blockade
   e. Excision of nodules.

Answer (C): Aspirin
This is a self-limited condition, treated by nothing more drastic than over the counter pain meds (aspirin or acetaminophen) and reassurance. In the rare cases where the patient develops signs of hyperthyroidism, you can treat with beta blockade. Treating with iodine or propylthiouracil does not help as this is not a problem of “too much production” it’s just “too much release” from the inflamed gland.

8. A woman undergoes a tubal ligation and is extremely upset when she misses two periods. She see her physician who finds a positive HCG. What is the likelihood that this pregnancy-after-tubal is ectopic?
   a. 30%
   b. 50%
   c. 10%
   d. 75%
   e. 100%

Answer (A): 30%
Yes, people can and do get pregnant after tubal ligations. The incidence is small (1%), but there it is. When a woman gets pregnant after a tubal, a dangerous 30% of these pregnancies are ectopic, with their associated problems (bleeding, acute abdomen).

9. A 30 year old woman has been trying to conceive for 5 years. Her husband’s semen analysis is normal, her menstrual cycle is normal, as are her hormone levels. A hysterosalpingogram shows distal occlusion of the Fallopian tubes bilaterally. The most likely cause of this is?
   a. Bifid uterus
   b. Molar pregnancy
   c. Pelvic inflammatory disease
   d. Reaction to an IUD
   e. Allergic reaction to different contraceptive creams

Answer (C): PID
Pelvic inflammatory disease results from an ascending infection. Causative agents are most often Neisseria gonorrhea and Chlamydia trachomatis. Symptoms include pelvic pain as well as discharge. The infection sets up an inflammatory response which can effectively “scar off” the distal Fallopian tubes resulting in sterility.

10. A 70 year old man with a 3 pack per day smoking history comes to see you with right foot pain which wakes him at night. When he sits up and dangles the foot over the bed, the pain gets better. He used
to be able to walk to the nearby library but can only get halfway there now when calf pain stops him. What diagnostic study should follow your H and P?

    a. CT scan of the foot
    b. MRI of the foot
    c. Lower extremity arterial duplex
    d. Intravenous pyelogram.
    e. Stress echo on a treadmill.

Answer (C): Arterial duplex.
This is the classic sign of arterial insufficiency, so he should get his arterial tree looked at with a duplex.
18. Anesthesia – Introduction to OR.

- Education leader.
  - Dr Delemos
  - Dr Gallagher

- Tips.
  - Enjoy daily career affirmation
  - Show up around 6:30 – 6:45 near the scheduling board and find a resident or attending to hang out with.
  - If Gallagher is in a room alone, hook up with him and you’ll get one on one tutoring for the whole case.

- Competency-Based Goals and Objectives.

I. **Rotation Definition:** 2 weeks in the OR’s. You’ll have the freedom to “go to the spot where you can learn the most.”

II. **General Goals:**
   You don’t want to show up July 1 of your CA-1 year clueless, so “get a feel for the place” now.

III. **COMPETENCY BASED LEARNING OBJECTIVES FOR ANESTHESIA**

**Patient care:**

1. Get a patient from the holding area to the OR.
2. Place IV’s.
3. “Stand in the room alone” and watch the patient for 5 minutes.
5. Intubate.
6. Extubate.

**Medical Knowledge:**

1. Know how to check out an anesthesia machine.
2. Know the basic steps of induction.
3. Know the basic steps of ventilation.
4. Know when a vital sign is dangerous.
Practice Based Learning:

1. Start reading Baby Miller.
2. Ask attendings and residents if you’re unclear on something.
3. Go to Grand Rounds and at least one 8 – 11 AM didactic session.

Professionalism:

1. Show up on time.
2. To excel, show up early.
3. Don’t talk about patients in the elevator or the hall.
4. Be nice.
5. Be clear, write neatly.

Interpersonal and Communication Skills
1. Be polite to patients and staff.

2. Don’t harass.

3. Don’t take it if someone harasses you, notify the Resident Director.

**Systems Based Practice:**

1. Be sensitive to costs.

2. Work with other specialties.

3. Keep good records.

4. Get all your paperwork done - USMLE Part 3/physical exam/ACLS status/dictations – anything “office” related, make the problem go away so someone else doesn’t have to chase you down or take care of it.

   • Evaluations.

   New Innovations has 3 areas to be evaluated:
   - Pre-rotation
   - Mid-rotation
   - End-rotation
   The education leader is responsible for making sure all three are completed.
   If they are not completed, then Dr Gallagher will do them.
   The evaluations have to be done by:
   - Pre-rotation – End of 1\textsuperscript{st} week
   - Mid-rotation – End of 2\textsuperscript{nd} week
   - End-rotation – End of 4\textsuperscript{th} week

   • Checklist.

   **Anesthesia Procedures**
   IV insertion
   Preoxygenation
   Mask ventilation
   Placement of oral airways
   Endotracheal intubation
   Basic ventilator management
   Extubation

   **Anesthesia Concepts**
   Preoperative Assessment
   Airway Assessment
   Airway Management
   Preoxygenation
   Inhaled Anesthetics
1. When examining an airway, which of the following predicts a difficult intubation?
   a. 4 fingerbreadths submental distance
   b. Ability to sublux the jaw and move it forward.
   c. Edentulosity (bet you didn’t know that was a word!)
   d. Receding chin
   e. Full neck mobility.

   Answer (D) Receding chin.
   As Sarah Palin would say, “Do we need to examine an airway well? You betcha! A short, receding chin, large teeth, immobility of the neck or jaw, and obesity all contribute to difficulty intubating.

2. A patient with a history of Malignant Hyperthermia is scheduled for your OR. Which neuromuscular blocker should you avoid?
   a. Succinylcholine
   b. Rocuronium
   c. Atracurium
   d. Cisatracurium
   e. Pancuronium.

   Answer (A) Succinylcholine
   MH can be triggered by succinylcholine as well as any of the potent anesthetic vapors (sevoflurane, isoflurane, desflurane). MH, even today, is difficult to treat and can result in death, so if a patient has this history, be sure and avoid all of these triggering agents.

3. Your first attempt at intubating fails. What is your next move?
   a. Attempt at least 2 more times.
   b. Perform a tracheostomy.
   c. Wake the patient up.
   d. Mask ventilate, then change something to improve your chances, and try again.
   e. Try a retrograde wire.

   Answer (D) Mask and change something.
   Especially early on, intubation will prove a little challenging. So know this and keep it close to your heart “You don’t HAVE to intubate, but you do have to ventilate”. So when it doesn’t go, back out, mask ventilate, assure good oxygenation, then do something different (different head position, different blade, different person) and try again.

4. You are doing your first case and not quite sure how to check the anesthesia machine. What should you do before starting the case?
   a. Just proceed with the case.
b. Ask that the case be transferred to a room you’re more familiar with.
c. Ask someone to help you check the machine.
d. Tell the attending you’re sick.
e. Do the case with infusions so you don’t have to worry about the vaporizers.

Answer (C) Ask for help.  
Probably the three most important words you can learn on this (or any) rotation. Ask for help. No one wins points for trying to be a hero and pretend that you know everything all the time. Just “reach out and touch someone” such as your attending or a senior resident to help you check that machine out.

5. At the end of a long case with lots of fluid shifts and blood administration, a patient’s face appears puffy. The decision arises regarding extubation. What is the best course of action in such a case?
   a. Keep the patient intubated.
   b. Extubate but place an LMA
   c. Extubate but place a nasal and oral airway.
   d. Extubate on 50% oxygen to prevent absorption atelectasis
   e. Change to a larger endotracheal tube over a changer.

Answer (A) Keep intubated  
If the airway is ever in doubt, it’s always safest to keep the patient intubated. Even changing the tube over a changer can be fraught with hazard, as you may blow it in the course of the exchange. Keep the patient intubated until the swelling is good and down, then extubate when it’s safe.

SUBSEQUENT QUESTIONS ARE NOT ABOUT ANESTHESIA AND WILL BE “SCATTERED ACROSS THE LANDSCAPE” OF THE USMLE PART 3 EXAM.

6. A college lacrosse player is having a routine physical exam before starting play. He complains of some pain in his side, but not much. You order a urinalysis and it shows 10 RBC/high powered field. He has complained of occasional blood in his urine but hasn’t seen a doctor about it. The next best study to perform is?
   a. 3 more urinalyses, done every other week, so see if this is real cause for concern.
   b. MRI
   c. CT with and without contrast
   d. Renal biopsy
   e. Pyelogram

Answer E.  
Hematuria should be considered a serious disease until proven otherwise. You can have severe hematuria with a minor problem or microscopic hematuria with a serious problem, so the amount of blood in the urine is not necessarily a gauge of the seriousness of the underlying problem. The best way to see what’s going on with the upper urinary system is a pyelogram.

7. You are planning a community effort, educating people in the 15 – 24 year old age group, to reduce mortality. The best “cause” to counsel from a statistical standpoint would be?
   a. Firearm safety
   b. Reducing smoking
   c. Motor vehicle safety
   d. Practicing safe sex
   e. Needle exchanges
Answer (C): Motor vehicle safety.
The number one cause of death in the 15 – 24 year old age group is trauma, most often from motor vehicle accidents. Suicide, homicide, and drowning, are also big causes. But the big killer is cars, our own homegrown “weapon of mass (young person) destruction”.

8. A 61 year old man is brought into the ER with a smell “not unlike that of alcohol” on his breath. His eyes are bloodshot and he weaves as he walks. He admits to drinking heavily. The sequence of symptoms he’ll suffer as he withdraws from alcohol are, in order, what?
   a. Tremulousness, DT’s, delusions, seizures
   b. DT’s, delusions, tremulousness, seizures
   c. Seizures, tremulousness, DT’s, delusions.
   d. Tremulousness, delusions, seizures, DT’s
   e. Delusions, tremulousness, DT’s, seizures.

   Answer (D): Tremulousness, delusions, seizures, DT’s.
   Tremulousness occurs in about 6 – 8 hours, delusions in 8 – 12, seizures 12 – 24, and DT’s within 72 hours. DT’s are extremely dangerous, with aspiration a risk, as well as severe autonomic instability. Mortality can run 15% in full blown DT’s, so this is a deadly serious disease.

9. A 30 year old man sees his primary care doctor about “stomach troubles”. He has no clear cut symptoms of GI disease, but appears withdrawn, not making eye contact, and stopping to cry at times. On closer questioning, he says he doesn’t sleep well, takes no interest in basketball or sex (he used to do both a lot, though not simultaneously, thank heavens), and has lost his appetite. The most likely diagnosis here is?
   a. Stomach CA
   b. Depression
   c. Crohn’s Disease
   d. Ulcerative colitis
   e. Psychosis

   Answer (B): Depression.
   Anhedonia (lack of interest in things that used to give pleasure), weight loss, insomnia, and vague complaints with no physical findings all point to depression as the diagnosis.

10. An important next point in the management of this 30 year old man is?
   a. Start anti-depressants.
   b. Start an antacid regimen.
   c. Have the patient sleep with the bed up.
   d. Ask if he has had thoughts of suicide.
   e. Ask if he has had a recent change in his diet.

   Answer (D): Ask about suicide.
   Patients with depression are at much higher risk for suicide versus patients who are not depressed. You can’t really “dance around” this question or “not ask it for fear of embarrassing the patient”, you have to come right out and ask it. If the patient is truly suicidal, he may need admission and observation to prevent a disaster.